



Basin 22 Storm Water and Manhole Solids Sampling and Analysis Data

October/November Sampling Events

Source Control Evaluation

Burgard Industrial Park

Portland, Oregon

TO: Jim Orr/Oregon DEQ
CC: Mat Cusma/Schnitzer
Mark Bartee/Schnitzer
FROM: Ross Rieke/Bridgewater Group
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This memorandum presents the results of the November 18, 2013 storm water and manhole solids sampling and analysis performed at Basin 22 at the Burgard Industrial Park (BIP) in Portland, Oregon (Figure 1, Figure 2). The storm water sampling and analysis were performed in general accordance with the March 1, 2012 *Source Control Evaluation, Basin 22 Sampling and Analysis Plan*, as revised by a March 20, 2013 email from Bridgewater Group to DEQ and approved by DEQ in an October 7, 2013 email.

Basin 22 Description

Basin 22 consists of an approximately 14 acre area in the northwest corner of the BIP. Figure 3 shows the approximate boundaries of Basin 22. The Basin 22 boundaries are estimated from observations of the site during wet weather conditions, the locations of catch basins, storm water system assessments on adjacent properties, storm water plan drawings, and the general topography of the basin. About $\frac{1}{2}$ of Basin 22 is outside the boundaries of the BIP on the RockTenn property.

As shown on Figure 3, a series of catch basins drains almost the entire northern portion of Basin 22 to a storm water pump station which pumps the storm water into a storm water detention pond. If the water level in the pond nears the top of the pond, water is manually discharged by opening a valve allowing discharge to a manhole located near the southern edge of the BIP. Building roof drains also discharge to the manhole. Discharge from the manhole joins with runoff from the southern portion of Basin 22 (the RockTenn property outside of the BIP) and is discharged out Outfall 22 to the IT Slip.

The southern boundary of Basin 22 is the top of bank along the northern edge of the IT Slip. The narrow strip of land south of this boundary is part of the BIP and consists of the heavily vegetated and/or armored slope of the bank. This slope does not receive any runoff from Basin 22 (or any other portion of the Burgard uplands) and any precipitation falling on this slope infiltrates down through the vegetation and armor, and does not become part of the Basin 22 discharge. Surface and near-surface soils in this bank area have been assessed through separate sampling activities.

The relevant (northern) portion of Basin 22 consists of approximately 8.3 acres and includes a 72,000 sq. ft. building occupied by two business entities. The western portion of the building is

occupied by Wilbur-Ellis Co., operating a dry-bulk (animal feed and organic fertilizer) packaging, ingredient blending, and transloading facility. These activities are conducted inside the building or under cover. The eastern portion of the building is occupied by RB Recycling, Inc., operating a tire shredding and rubber processing facility. The majority of this facility's storage and packaging operations are conducted inside the building. The stormwater drainage from areas directly beneath outside processing and conveying equipment is either recycled as process cooling water or is discharged to the sanitary sewer. All operations in this basin occur on paved areas.

Basin 22 Storm Water Sampling and Analysis

Storm Water Sample Collection

A Basin 22 storm water sample was collected on November 18, 2013 at the Basin 22 outfall on the north shore of the IT Slip. Table 1 presents the rainfall conditions preceding, and during, the storm water sampling event. Access to the onsite storm water pond was not available during the October/November sampling events and the storm water pond sample (SP-2) will be collected during future sampling events.

Storm Water Sample Analysis

The Basin 22 storm water sample was analyzed for the following:

- PCB aroclors, homologs, and congeners;
- Phthalates;
- Dioxins/furans;
- Butyltins;
- Aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc;
- Polycyclic aromatic hydrocarbons (PAHs);
- Organochlorine pesticides;
- Petroleum Hydrocarbons (gasoline, diesel, and heavy oil);
- Total suspended solids (TSS); and
- Total organic carbon (TOC).

Table 2 presents the results of the Basin 22 storm water sample analyses. Copies of the analytical laboratory reports are provided in Appendix A. Review of the laboratory QA/QC results did not indicate any issues requiring corrective action.

Basin 22 Manhole Solids Sampling and Analysis

A manhole solids sample was collected on October 29, 2013 from the bottom of the manhole near the southeast corner of the Wilbur-Ellis and RB Recycling property (Figure 3). The manhole solids sample was analyzed for the following:

- PCB aroclors, congeners, and homologs;
- Phthalates;

- Dioxins/furans;
- Butyltins;
- Aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc;
- Polycyclic aromatic hydrocarbons (PAHs);
- Organochlorine pesticides;
- Petroleum hydrocarbons (gasoline, diesel, and heavy oil fractions); and
- Total organic carbon.

Table 3 presents the results of the catch basin solids laboratory analyses. Copies of the analytical laboratory reports are provided in Appendix A. Review of the laboratory QA/QC results did not indicate any issues requiring corrective action.

Attachments:

Table 1 – Storm Water Sampling Event Rainfall Data, 11/18/2013 Sampling Event

Table 2 – Storm Water Sample Analytical Laboratory Results

Table 3 – Manhole Solids Sample Analytical Laboratory Results

Figure 1 – Site Location Map

Figure 2 – Burgard Industrial Park Site Plan

Figure 3 – Basin 22 Sample Locations

Appendix A – Analytical Laboratory Reports

Tables

Table 1
Storm Water Sampling Event Rainfall Data
11/18/2013 Sampling Event
Burgard Industrial Park Basin 22

Date	Daily Total	Hourly Rain Fall (0.01 inches)																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
11/5/13	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
11/6/13	38	0	0	0	0	0	0	0	0	0	1	1	1	1	1	6	4	5	2	1	4	7	1	3	
11/7/13	40	0	1	0	2	0	2	1	0	19	12	0	0	0	0	0	0	1	0	0	2	0	0	0	0
11/8/13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/9/13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/10/13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/12/13	19	0	0	2	4	5	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/13/13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/14/13	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
11/15/13	10	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	0	0	3	0	0	1	0	0
11/16/13	10	2	0	0	0	0	0	1	0	4	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
11/17/13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
11/18/13	34	0	0	0	0	0	0	0	0	0	4	9	2	0	4	1	0	5	7	1	1	0	0	0	0

Data from Shipyard Rain Gage - 8900 N. Sever Road

Sampling Day
Sampling Hours

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	DEQ Appendix E "Typical PH Values" ²	SP-1 11/18/2013
PAHs (ug/l)			
Acenaphthene	0.2		0.042 U
Acenaphthylene	0.2		0.078 J
Anthracene			0.042 U
Benzo(a)anthracene	0.018		0.042 U
Benzo(a)pyrene	0.018		0.048 J
Benzo(b+k)fluoranthene	0.018		0.042 U
Benzo(g,h,i)perylene	0.2		0.042 U
Chrysene	0.018		0.042 U
Dibenzo(a,h)anthracene	0.018		0.042 U
Fluoranthene	0.2		0.042 U
Fluorene	0.2		0.042 U
Indeno(1,2,3-cd)pyrene	0.018		0.042 U
Naphthalene	0.2		0.083 U
Phenanthrene	0.2		0.042 U
Pyrene	0.2		0.042 U
Total Detected PAHs		1	0.13
PCBs (ug/l)			
Aroclor 1016	0.96		0.010 U
Aroclor 1221	0.034		0.010 U
Aroclor 1232	0.034		0.019 U
Aroclor 1242	0.034		0.010 U
Aroclor 1248	0.034		0.010 U
Aroclor 1254	0.034		0.010 U
Aroclor 1260	0.034		0.010 U
Total Detected PCB aroclors	0.000064		0.000
PCB Congeners (ng/l)			
2-MonoCB-(1)			0.035 J
3-MonoCB-(2)			0.016 U
4-MonoCB-(3)			0.018 U
22'-DiCB-(4)			0.22
2,3-DiCB-(5)			0.015 U
2,3'-DiCB-(6)			0.042 J
2,4-DiCB-(7)			0.013 U
2,4'-DiCB-(8)			0.20
2,5-DiCB-(9)			0.013 U
2,6-DiCB-(10)			0.015 U
3,3'-DiCB-(11)			0.44
DiCB-(12)+(13)			0.013 U
3,5-DiCB-(14)			0.013 U
4,4'-DiCB-(15)			0.12
22'3-TriCB-(16)			0.16
22'4-TriCB-(17)			0.13
TriCB-(18)+(30)			0.27
22'6-TriCB-(19)			0.051 J
TriCB-(20) + (28)			0.39
TriCB-(21)+(33)			0.26
234'-TriCB-(22)			0.17
235-TriCB-(23)			0.015 U
236-TriCB-(24)			0.015 U
23'4-TriCB-(25)			0.03 J
TriCB-(26)+(29)			0.0680 J
23'6-TriCB-(27)			0.021 J
24'5-TriCB-(31)			0.34
24'6-TriCB-(32)			0.081 J

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	DEQ Appendix E "Typical PH Values" ²	SP-1 11/18/2013
23'5'-TriCB-(34)			0.014 U
33'4'-TriCB-(35)			0.013 U
33'5'-TriCB-(36)			0.012 U
344'-TriCB-(37)			0.12
345'-TriCB-(38)			0.014 U
34'5'-TriCB-(39)			0.013 U
TetraCB-(40)+(41)+(71)			0.16 J
22'34'-TetraCB-(42)			0.079 J
22'35'-TetraCB-(43)			0.033 U
TetraCB-(44)+(47)+(65)			0.25 J
TetraCB-(45)+(51)			0.050 J
22'36'-TetraCB-(46)			0.025 U
22'45'-TetraCB-(48)			0.055 J
TetraCB-(49)+TetraCB-(69)			0.13 J
TetraCB-(50)+(53)			0.032 J
22'55'-TetraCB-(52)			0.22
22'66'-TetraCB-(54)			0.0094 U
233'4'-TetraCB-(55)			0.015 U
233'4'-Tetra CB(56)			0.10
233'5'-TetraCB-(57)			0.014 U
233'5'-TetraCB-(58)			0.014 U
TetraCB-(59)+(62)+(75)			0.025 J
2344'-TetraCB -(60)			0.053 J
TetraCB-(61)+(70)+(74)+(76)			0.32 J
234'5'-TetraCB-(63)			0.013 U
234'6'-TetraCB-(64)			0.13
23'44'-TetraCB-(66)			0.14
23'45'-TetraCB-(67)			0.014 U
23'45'-TetraCB-(68)			0.013 U
23'55'-TetraCB-(72)			0.014 U
23'5'6-TetraCB-(73)			0.014 U
33'44'-TetraCB-(77)			0.024 J
33'45'-TetraCB-(78)			0.015 U
33'45'-TetraCB(79)			0.013 U
33'55'-TetraCB-(80)			0.013 U
344'5'-TetraCB-(81)			0.018 U
22'33'4-PentaCB-(82)			0.037 J
PentaCB-(83)+(99)			0.11 J
22'33'6-PentaCB-(84)			0.061 U
PentaCB-(85)+(116)+(117)			0.036 J
PentaCB-(86)(87)(97)(109)(119)(125)			0.17 J
PentaCB-(88)+(91)			0.030 J
22'346'-PentaCB-(89)			0.020 U
PentaCB-(90)+(101)+(113)			0.20 J
22'355'-PentaCB-(92)			0.038 J
PentaCB-(93)+(98)+(100)+(102)			0.019 U
22'356'-PentaCB-(94)			0.020 U
22'35'6-PentaCB-(95)			0.16
22'366'-PentaCB-(96)			0.010 U
22'45'6-PentaCB-(103)			0.017 U
22'466'-PentaCB-(104)			0.0087 U
233'44'-PentaCB-(105)			0.12
233'45-PentaCB-(106)			0.016 U
233'4'5-PentaCB-(107)			0.015 U
PentaCB-(108)+(124)			0.015 U
PentaCB-(110)+(115)			0.34
233'55'-PentaCB-(111)			0.013 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	DEQ Appendix E "Typical PH Values" ²	SP-1 11/18/2013
233'56-PentaCB-(112)			0.014 U
2344'5-PentaCB-(114)			0.018 U
23'44'5-PentaCB-(118)			0.24
23'455'-PentaCB-(120)			0.013 U
23'45'6-PentaCB-(121)			0.014 U
233'4'5'-PentaCB-(122)			0.017 U
23'44'5'-PentaCB-(123)			0.019 U
33'44'5-PentaCB-(126)			0.018 U
33'455'-PentaCB-(127)			0.016 U
HexaCB-(128)+(166)			0.06 U
HexaCB-(129)+(138)+(163)			0.40
22'33'45'-HexaCB-(130)			0.034 U
22'33'46'-HexaCB-(131)			0.039 U
22'33'46'-HexaCB-(132)			0.12
22'33'55'-HexaCB-(133)			0.032 U
HexaCB-(134)+(143)			0.035 U
HexaCB-(135)+(151)			0.08 J
22'33'66'-HexaCB-(136)			0.031 J
22'344'5-HexaCB-(137)			0.034 U
HexaCB-(139)+(140)			0.029 U
22'3455'-HexaCB-(141)			0.06 J
22'3456-HexaCB-(142)			0.034 U
22'345'6-HexaCB-(144)			0.030 U
22'3466'-HexaCB-(145)			0.023 U
22'34'55'-HexaCB-(146)			0.037 J
HexaCB-(147)+(149)			0.20
22'34'56'-HexaCB-(148)			0.030 U
22'34'66'-HexaCB-(150)			0.021 U
22'3566'-HexaCB-(152)			0.023 U
HexaCB-(153)+(168)			0.22
22'44'56'-HexaCB-(154)			0.027 U
22'44'66'-HexaCB-(155)			0.023 U
HexaCB-(156)+(157)			0.045 J
233'44'6-HexaCB-(158)			0.036 U
233'455'-HexaCB-(159)			0.018 U
233'456-HexaCB-(160)			0.023 U
233'45'6-HexaCB-(161)			0.023 U
233'4'55'-HexaCB-(162)			0.018 U
233'4'56-HexaCB-(164)			0.024 J
233'55'6-HexaCB-(165)			0.025 U
23'44'55'-HexaCB-(167)			0.020 U
33'44'55'-HexaCB-(169)			0.021 U
22'33'44'5-HeptaCB-(170)			0.08 J
HeptaCB-(171)+(173)			0.028 U
22'33'455'-HeptaCB-(172)			0.028 U
22'33'456'-HeptaCB-(174)			0.061 J
22'33'45'6-HeptaCB-(175)			0.024 U
22'33'466'-HeptaCB-(176)			0.018 U
22'33'45'6-HeptaCB-(177)			0.033 J
22'33'55'6-HeptaCB-(178)			0.025 U
22'33'566'-HeptaCB-(179)			0.018 U
HeptaCB-(180)+(193)			0.16 J
22'344'56-HeptaCB-(181)			0.026 U
22'344'56'-HeptaCB-(182)			0.025 U
22'344'5'6-HeptaCB-(183)			0.035 J
22'344'66'-HeptaCB-(184)			0.017 U
22'3455'6-HeptaCB-(185)			0.030 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	DEQ Appendix E "Typical PH Values" ²	SP-1 11/18/2013
22'34566'-HeptaCB-(186)			0.018 U
22'34'55'6-HeptaCB-(187)			0.07 J
22'34'566'-HeptaCB-(188)			0.021 U
233'44'55'-HeptaCB-(189)			0.013 U
233'44'56-HeptaCB-(190)			0.022 U
233'44'5'6-HeptaCB-(191)			0.020 U
233'455'6-HeptaCB-(192)			0.021 U
22'33'44'55'-OctaCB-(194)			0.039 J
22'33'44'56-OctaCB-(195)			0.023 U
22'33'44'56'-OctaCB-(196)			0.020 U
22'33'44'66-OctaCB-(197)			0.014 U
OctaCB-(198)+(199)			0.048 J
22'33'4566'-OctaCB-(200)			0.013 U
22'33'45'66'-OctaCB-(201)			0.013 U
22'33'55'66'-OctaCB-(202)			0.018 U
22'344'55'6-OctaCB-(203)			0.026 J
22'344'566'-OctaCB-(204)			0.014 U
233'44'55'6-OctaCB-(205)			0.019 U
22'33'44'55'6-NonaCB-(206)			0.026 U
22'33'44'566'-NonaCB-(207)			0.020 U
22'33'455'66'-NonaCB-(208)			0.024 U
DecaCB-(209)			0.016 U
PCB Homologs (ng/l)			
Monochlorobiphenyl			0.035
Dichlorobiphenyl			1.0
Trichlorobiphenyl			2.1
Tetrachlorobiphenyl			1.8
Pentachlorobiphenyl			1.5
Hexachlorobiphenyl			1.2
Heptachlorobiphenyl			0.44
Octachlorobiphenyl			0.11
Nonachlorobiphenyl			0.026 U
Decachlorobiphenyl			0.016 U
Total Detected PCBs (Method 1668)	0.064	400	8.2
Phthalates (ug/l)			
Bis(2-ethylhexyl) phthalate	2.2	5	4.6 U
Butylbenzyl phthalate	3		6.3 U
Dibutyl phthalate	3		6.3 U
Diethyl phthalate	3		6.3 U
Dimethyl phthalate	3		6.3 U
Di-n-octyl phthalate	3		6.3 U
Pesticides (ug/l)			
2,4'-DDD	0.00031		0.010 U
2,4'-DDE	0.00022		0.010 U
2,4'-DDT	0.2		0.010 U
4,4'-DDD	0.00031		0.010 U
4,4'-DDE	0.00022		0.010 U
4,4'-DDT	0.00022		0.010 U
Aldrin	0.00005		0.010 U
alpha-BHC	0.0049		0.010 U
beta-BHC	0.017		0.010 U
cis-Chlordane	0.00081		0.010 U
cis-Nonachlor	0.19		0.010 U
Chlordane Technical			0.38 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	DEQ Appendix E "Typical PH Values" ²	SP-1 11/18/2013
delta-BHC	0.052		0.010 U
Dieldrin	0.000054		0.010 U
Endosulfan I	0.051		0.010 U
Endosulfan II	0.051		0.010 U
Endosulfan sulfate	89		0.0101 U
Endrin	0.036		0.010 U
Endrin aldehyde			0.01 U
Endrin ketone			0.010 U
gamma-BHC	0.037		0.010 U
Heptachlor	0.000079		0.010 U
Heptachlor epoxide	0.000039		0.010 U
Hexachlorobenzene	0.00029		0.030 U
Hexachlorobutadiene	0.86		0.010 U
Hexachloroethane	3.3		
Methoxychlor	0.03		0.030 U
Mirex	NC		0.010 U
Oxychlordane	0.19		0.010 U
Toxaphene	0.0002		0.38 U
trans-Chlordane	0.00081		0.010 U
trans-Nonachlor	0.19		0.010 U
Dioxins (pg/l)			
1,2,3,4,6,7,8-HeptaCDD			34
1,2,3,4,6,7,8-HeptaCDF			19 U
1,2,3,4,7,8,9-HeptaCDF			1.3 U
1,2,3,4,7,8-HexaCDD			1.0 U
1,2,3,4,7,8-HexaCDF			1.1 U
1,2,3,6,7,8-HexaCDD			1.1 U
1,2,3,6,7,8-HexaCDF			1.0 J
1,2,3,7,8,9-HexaCDD			1.2 U
1,2,3,7,8,9-HexaCDF			1.4 U
1,2,3,7,8-PentaCDD			1.5 U
1,2,3,7,8-PentaCDF			1.3 U
2,3,4,6,7,8-HexaCDF			1.1 U
2,3,4,7,8-PentaCDF			1.4 U
2,3,7,8-TetraCDD	0.0051		1.2 U
2,3,7,8-TetraCDF			1.0 U
OCDD			256
OCDF			34
HeptaCDD homologs			64
HeptaCDF homologs			26
HexaCDD homologs			7.5 J
HexaCDF homologs			18
PentaCDD homologs			1.5 U
PentaCDF homologs			1.4 U
TetraCDD homologs			1.2 U
TetraCDF homologs			1.0 U
Total Dioxin TEQ	0.0051		2.6
Butyltins (ug/l)			
Butyltin ion			0.20 U
Dibutyltin ion			0.29 U
Tributyltin ion	0.072		0.19 U
Total Metals (ug/l)			
Aluminum			322
Antimony	6		0.50 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	DEQ Appendix E "Typical PH Values" ²	SP-1 11/18/2013
Arsenic	0.045	2	0.50 U
Cadmium	0.094	0.7	0.96 J
Chromium	100	7	2 J
Copper	2.7	60	6.5
Lead	0.54	50	2.34
Manganese	50		28
Mercury	0.77	0.2	0.040 U
Nickel	16	8	1.0
Silver	0.12	0.1	0.10 U
Zinc	36	500	80
Dissolved Metals (ug/l)			
Aluminum			28 J
Antimony	6		0.50 U
Arsenic	0.045	2	0.50 U
Cadmium	0.094	0.7	0.10 J
Chromium	100	7	0.50 U
Copper	2.7	60	5.1
Lead	0.54	50	0.36
Manganese	50		17
Mercury	0.77	0.2	0.040 U
Nickel	16	8	0.74 J
Silver	0.12	0.1	0.10 U
Zinc	36	500	68
Pertroleum Hydrocarbons (mg/l)			
Gasoline			0.050 U
Diesel			0.10 U
Oil			0.52
TSS (mg/l)		60	5.0 U
TOC (mg/l)			8.5

U - Not detected at noted detection limit

J- Estimated value

1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision

2 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data

- Detected concentration > 10 x SLV
- Detected concentration > 100 x SLV
- Detected concentration > 1000 x SLV

Table 3
Manhole Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	Portland Harbor PRG SLV ²	DEQ Appendix E "Typical PH Values" ³	SWSP-MH
PAHs (ug/kg)				
2-Methylnaphthalene	200			412 U
Acenaphthene	300			206 U
Acenaphthylene	200			206 U
Anthracene	845			206 U
Benzo(a)anthracene	1050			425
Benzo(a)pyrene	1450			682
Benzo(b+k)fluoranthene	13000			1084
Benzo(g,h,i)perylene	300			646
Chrysene	1290			583
Dibenzo(a,h)anthracene	1300			206 U
Fluoranthene	2230			965
Fluorene	536			206 U
Indeno(1,2,3-cd)pyrene	100			393 J
Naphthalene	561			412 U
Phenanthrene	1170			505
Pyrene	1520			1160
Total PAHs (BaP TEQ)		162		891
Total Detected PAHs			15000	6443
PCBs (ug/kg)				
Aroclor 1016	530			5.3 U
Aroclor 1221				5.3 U
Aroclor 1232				5.3 U
Aroclor 1242				5.3 U
Aroclor 1248	1500			5.3 U
Aroclor 1254	300			11
Aroclor 1260	200			9.4 J
Total Detected PCB Aroclors		17	150	20
PCB Congeners (pg/g)				
CL1-PCB-1				0.0048 J
CL1-PCB-2				0.0019 U
CL1-PCB-3				0.0047 J
CL2-PCB-4				0.0443
CL2-PCB-5				0.0021 U
CL2-PCB-6				0.023
CL2-PCB-7				0.0039 J
CL2-PCB-8				0.083
CL2-PCB-9				0.0064 J
CL2-PCB-10				0.0019 J
CL2-PCB-11				0.045
CL2-PCB-12/13				0.016 J
CL2-PCB-14				0.0017 U
CL2-PCB-15				0.18
CL3-PCB-16				0.12
CL3-PCB-17				0.14

Table 3
Manhole Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	Portland Harbor PRG SLV ²	DEQ Appendix E "Typical PH Values" ³	SWSP-MH
CL3-PCB-19				0.041
CL3-PCB-21/33				0.32
CL3-PCB-22				0.22
CL3-PCB-23				0.0019 U
CL3-PCB-24				0.0050 J
CL3-PCB-25				0.042
CL3-PCB-26/29				0.086
CL3-PCB-27				0.031
CL3-PCB-28/20				0.61
CL3-PCB-30/18				0.30
CL3-PCB-31				0.47
CL3-PCB-32				0.11
CL3-PCB-34				0.0019 U
CL3-PCB-35				0.011
CL3-PCB-36				0.0017 U
CL3-PCB-37				0.19
CL3-PCB-38				0.0019 U
CL3-PCB-39				0.0018 U
CL4-PCB-41/40/71				0.31
CL4-PCB-42				0.18
CL4-PCB-43				0.026
CL4-PCB-44/47/65				0.67
CL4-PCB-45/51				0.12
CL4-PCB-46				0.049
CL4-PCB-48				0.097
CL4-PCB-50/53				0.097
CL4-PCB-52				1.2
CL4-PCB-54				0.0019 U
CL4-PCB-55				0.0019 U
CL4-PCB-56				0.15
CL4-PCB-57				0.0018 U
CL4-PCB-58				0.0018 U
CL4-PCB-59/62/75				0.057
CL4-PCB-60				0.064
CL4-PCB-61/70/74/76				0.92
CL4-PCB-63				0.012
CL4-PCB-64				0.32
CL4-PCB-66				0.29
CL4-PCB-67				0.011
CL4-PCB-68				0.0016 U
CL4-PCB-69/49				0.36
CL4-PCB-72				0.0018 U
CL4-PCB-73				0.0015 U
CL4-PCB-77	52			0.039
CL4-PCB-78				0.0018 U
CL4-PCB-79				0.029
CL4-PCB-80				0.0016 U

Table 3
Manhole Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	Portland Harbor PRG SLV ²	DEQ Appendix E "Typical PH Values" ³	SWSP-MH
CL4-PCB-81	17			0.0020 U
CL5-PCB-82				0.17
CL5-PCB-83/99				0.72
CL5-PCB-84				0.49
CL5-PCB-88/91				0.20
CL5-PCB-89				0.013
CL5-PCB-113/90/101				1.6
CL5-PCB-92				0.27
CL5-PCB-93/98/11/102				0.050
CL5-PCB-94				0.0070 J
CL5-PCB-95				1.5
CL5-PCB-96				0.0097
CL5-PCB-103				0.0066 J
CL5-PCB-104				0.0016 U
CL5-PCB-105	170			0.56
CL5-PCB-106				0.0017 U
CL5-PCB-107/124				0.078
CL5-PCB-108/119/86/97/125/87				1.0
CL5-PCB-109				0.051
CL5-PCB-110/115				2.3
CL5-PCB-111				0.0017 U
CL5-PCB-112				0.0018 U
CL5-PCB-114	170			0.028
CL5-PCB-117/116/85				0.16
CL5-PCB-118	120			1.4
CL5-PCB-120				0.0016 U
CL5-PCB-121				0.0018 U
CL5-PCB-122				0.016
CL5-PCB-123	210			0.018
CL5-PCB-126	0.05			0.0041 J
CL5-PCB-127				0.0017 U
CL6-PCB-128/166				0.41
CL6-PCB-129/138/163				3.0
CL6-PCB-130				0.16
CL6-PCB-131				0.039
CL6-PCB-132				0.95
CL6-PCB-133				0.028
CL6-PCB-134/143				0.13
CL6-PCB-151/135				0.68
CL6-PCB-136				0.30
CL6-PCB-137				0.14
CL6-PCB-139/140				0.039
CL6-PCB-141				0.49
CL6-PCB-142				0.0027 U
CL6-PCB-144				0.097
CL6-PCB-145				0.0019 U
CL6-PCB-146				0.30

Table 3
Manhole Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	Portland Harbor PRG SLV ²	DEQ Appendix E "Typical PH Values" ³	SWSP-MH
CL6-PCB-147/149				1.9
CL6-PCB-148				0.0024 U
CL6-PCB-150				0.0019 U
CL6-PCB-152				0.0018 U
CL6-PCB-153/168				1.8
CL6-PCB-154				0.012
CL6-PCB-155				0.0021 U
CL6-PCB-156/157	210			0.27
CL6-PCB-158				0.27
CL6-PCB-159				0.017
CL6-PCB-160				0.0019 U
CL6-PCB-161				0.0018 U
CL6-PCB-162				0.0054 U
CL6-PCB-164				0.18
CL6-PCB-165				0.0019 U
CL6-PCB-167	210			0.086
CL6-PCB-169	0.21			0.0026 U
CL7-PCB-170				0.46
CL7-PCB-171/173				0.15
CL7-PCB-172				0.076
CL7-PCB-174				0.50
CL7-PCB-175				0.020
CL7-PCB-176				0.057
CL7-PCB-177				0.27
CL7-PCB-178				0.080
CL7-PCB-179				0.18
CL7-PCB-180/193				1.1
CL7-PCB-181				0.0017 U
CL7-PCB-182				0.0027 U
CL7-PCB-183				0.30
CL7-PCB-184				0.0018 U
CL7-PCB-185				0.0016 U
CL7-PCB-186				0.0020 U
CL7-PCB-187				0.50
CL7-PCB-188				0.0024 U
CL7-PCB-189	1200			0.018
CL7-PCB-190				0.087
CL7-PCB-191				0.018
CL7-PCB-192				0.0015 U
CL8-PCB-194				0.15
CL8-PCB-195				0.067
CL8-PCB-196				0.089
CL8-PCB-197				0.0071 J
CL8-PCB-198/199				0.18
CL8-PCB-200				0.019
CL8-PCB-201				0.022
CL8-PCB-202				0.036

Table 3
Manhole Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	Portland Harbor PRG SLV ²	DEQ Appendix E "Typical PH Values" ³	SWSP-MH
CL8-PCB-203				0.11
CL8-PCB-204				0.0017 U
CL8-PCB-205				0.0091 J
CL9-PCB-206				0.11
CL9-PCB-207				0.011
CL9-PCB-208				0.033
CL10-PCB-209				0.12
PCB Homologs (ug/kg)				
Monochlorobiphenyl				0.0095
Dichlorobiphenyl				0.41
Trichlorobiphenyl				2.7
Tetrachlorobiphenyl				5.0
Pentachlorobiphenyl				11
Hexachlorobiphenyl				11
Heptachlorobiphenyl				3.8
Octachlorobiphenyl				0.69
Nonachlorobiphenyl				0.16
Decachlorobiphenyl				0.12
Total Detected PCBs (Method 1618)	0.39	17	150	35
Phthalates (ug/kg)				
Bis(2-ethylhexyl) phthalate	330		30000	2060 U
Butylbenzyl phthalate				2060 U
Diethyl phthalate	600			2060 U
Dimethyl phthalate				2060 U
Dibutyl phthalate				2060 U
Di-n-octyl phthalate	60			4120 U
Pesticides (ug/kg)				
2,4'-DDD	0.33	28		2.0 U
2,4'-DDE	0.33	31.3		2.0 U
2,4'-DDT	0.33	62.9		2.0 U
4,4'-DDD	0.33	28		2.0 U
4,4'-DDE	0.33	31.3		2.0 U
4,4'-DDT	0.33	62.9		5.9 U
Aldrin	40	0.84		2.0 U
alpha-Hexachlorocyclohexane				2.0 U
beta-Hexachlorocyclohexane				2.0 U
Chlordane Technical				59 U
cis-Chlordane	0.37	1.87		2.0 U
cis-Nonachlor				2.0 U
delta-Hexachlorocyclohexane	4.99	2.35		2.0 U
Dieldrin	0.0081	21.5		2.0 U
alpha-Endosulfan				2.0 U
beta-Endosulfan				2.0 U
Endosulfan sulfate				2.0 U

Table 3
Manhole Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	Portland Harbor PRG SLV ²	DEQ Appendix E "Typical PH Values" ³	SWSP-MH
Endrin	207			2.0 U
Endrin aldehyde				2.0 U
Endrin ketone		8.5		2.0 U
gamma-Hexachlorocyclohexane		1.38		2.0 U
Heptachlor	10			2.0 U
Heptachlor epoxide	16			2.0 U
Hexachlorobenzene	19			4.9 U
Hexachlorobutadiene	600			2.0 U
Methoxychlor				5.9 U
Mirex				2.0 U
Oxychlordane				2.0 U
Toxaphene				59 U
trans-Chlordane	0.37			2.0 U
trans-Nonachlor				2.0 U
Dioxins (pg/g)				
1,2,3,4,6,7,8-HeptaCDD	690			55
1,2,3,4,6,7,8-HeptaCDF	690			19
1,2,3,4,7,8,9-HeptaCDF	690			1.1 J
1,2,3,4,7,8-HexaCDD				1.0 U
1,2,3,4,7,8-HexaCDF	2.7			0.82 U
1,2,3,6,7,8-HexaCDD				2.4 U
1,2,3,6,7,8-HexaCDF	2.7			0.68 J
1,2,3,7,8,9-HexaCDD				2.4 J
1,2,3,7,8,9-HexaCDF	2.7			0.12 U
1,2,3,7,8-PentaCDD	2.6			0.74 J
1,2,3,7,8-PentaCDF	2.6			0.21 J
2,3,4,6,7,8-HexaCDF	2.7			0.56 J
2,3,4,7,8-PentaCDF	0.030	1.06		0.41 U
2,3,7,8-TetraCDD	0.0091			0.23 U
2,3,7,8-TetraCDF	0.77			0.44 J
OCDD	23000			438
OCDF	23000			58
Total Hepta CDD				142
Total Hepta CDF				48
Total Hexa CDD				17
Total Hexa CDF				18
Total Penta CDD				1.5 J
Total Penta CDF				5.2
Total Tetra CDD				0.44 U
Total Tetra CDF				0.66 J
Total TEQ	0.091			2.4
Butyltins (ug/kg)				
Butyltin ion				6.1
Dibutyltin ion				3.0 J
Tributyltin ion	2.3			3.8 U

Table 3
Manhole Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 22

Chemical	Portland Harbor JSCS SLV ¹	Portland Harbor PRG SLV ²	DEQ Appendix E "Typical PH Values" ³	SWSP-MH
Metals (mg/kg)				
Aluminum				4730
Antimony	64			0.58 U
Arsenic	7	17	10	1.6
Cadmium	1	3.51	2	0.33
Chromium	111	90	130	9.3
Copper	149	149	500	26
Lead	17	91.3	300	22
Manganese	1100			204
Mercury	0.07	0.041	0.35	0.047 U
Nickel	48.6	36	60	12
Silver	5	1.72	0.7	0.12 U
Zinc	459	315	1000	154
Total Petroleum Hydrocarbons (mg/kg)				
Gasoline				3.0 U
Diesel				105 U
Oil				868

U - Not detected at noted detection limit

J - Estimated value

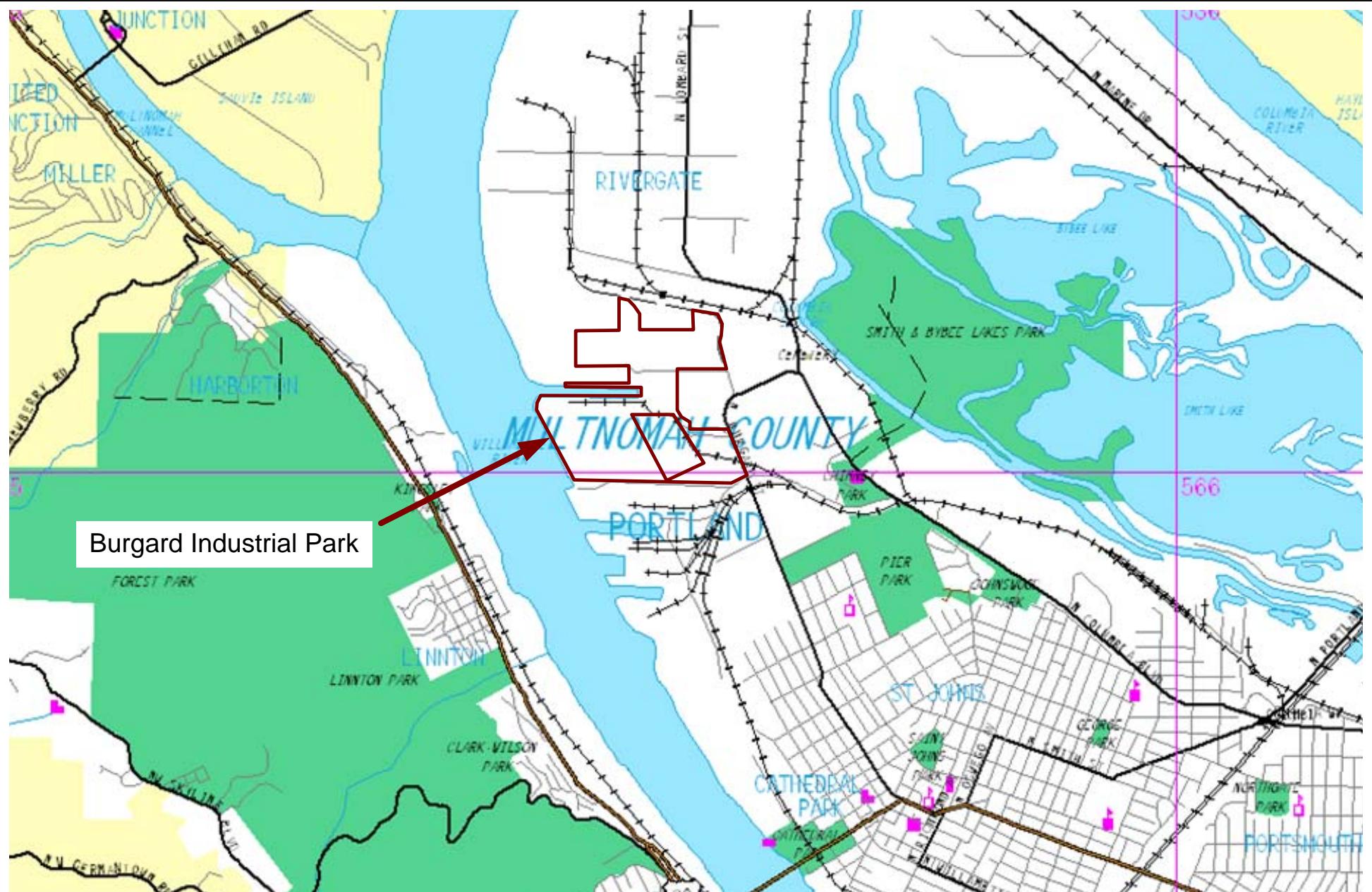
1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision

2 - April 21, 2010 EPA letter to Lower Willamette Group and attached tables dated March 24, 2010

3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data

Detected concentration > 10 x Highest SLV
Detected concentration > 100 x Highest SLV
Detected concentration > 1000 x Highest SLV

Figures



Portland,
Oregon



Approximate Scale

2700 feet

Figure 1
Site Location Map
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

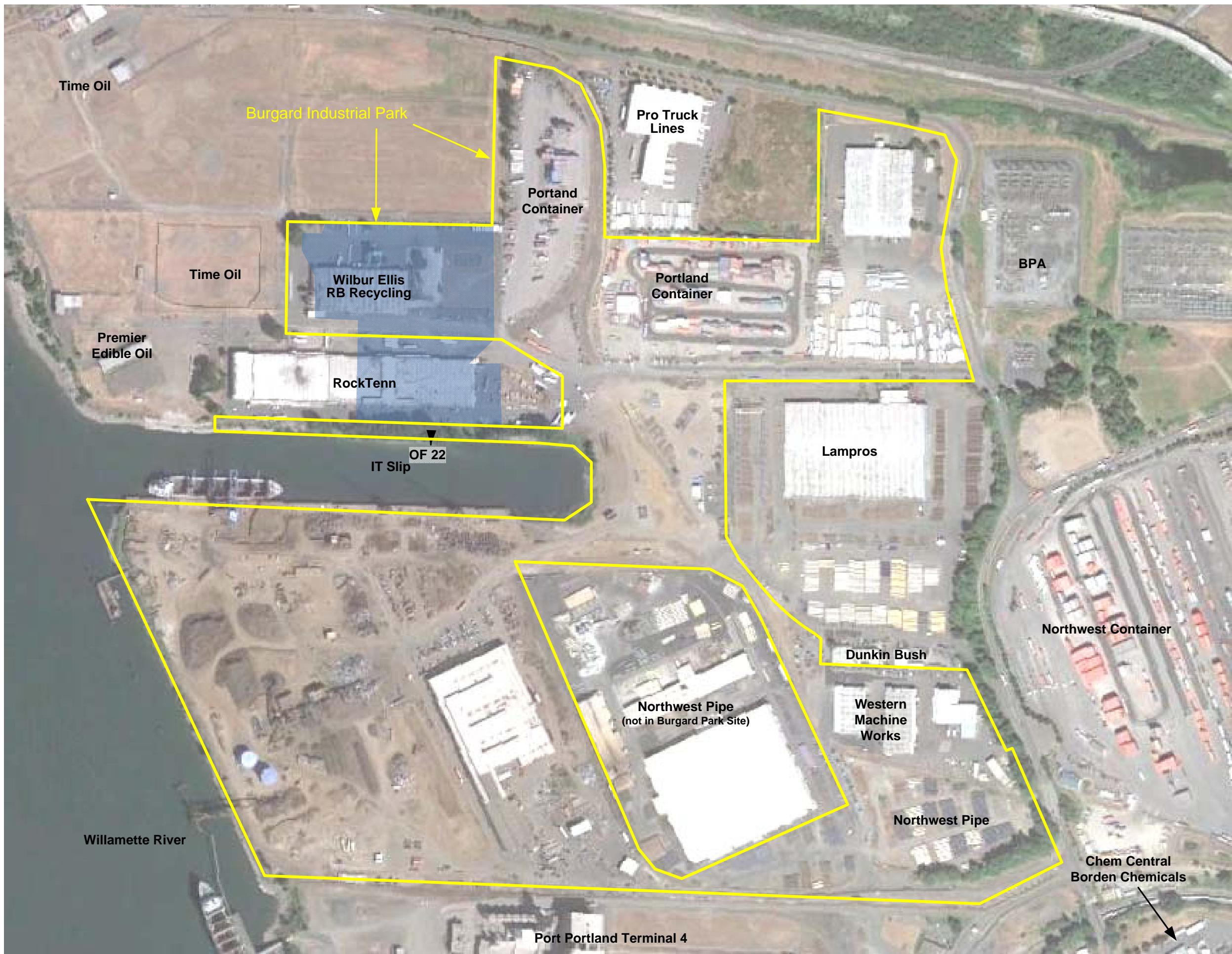
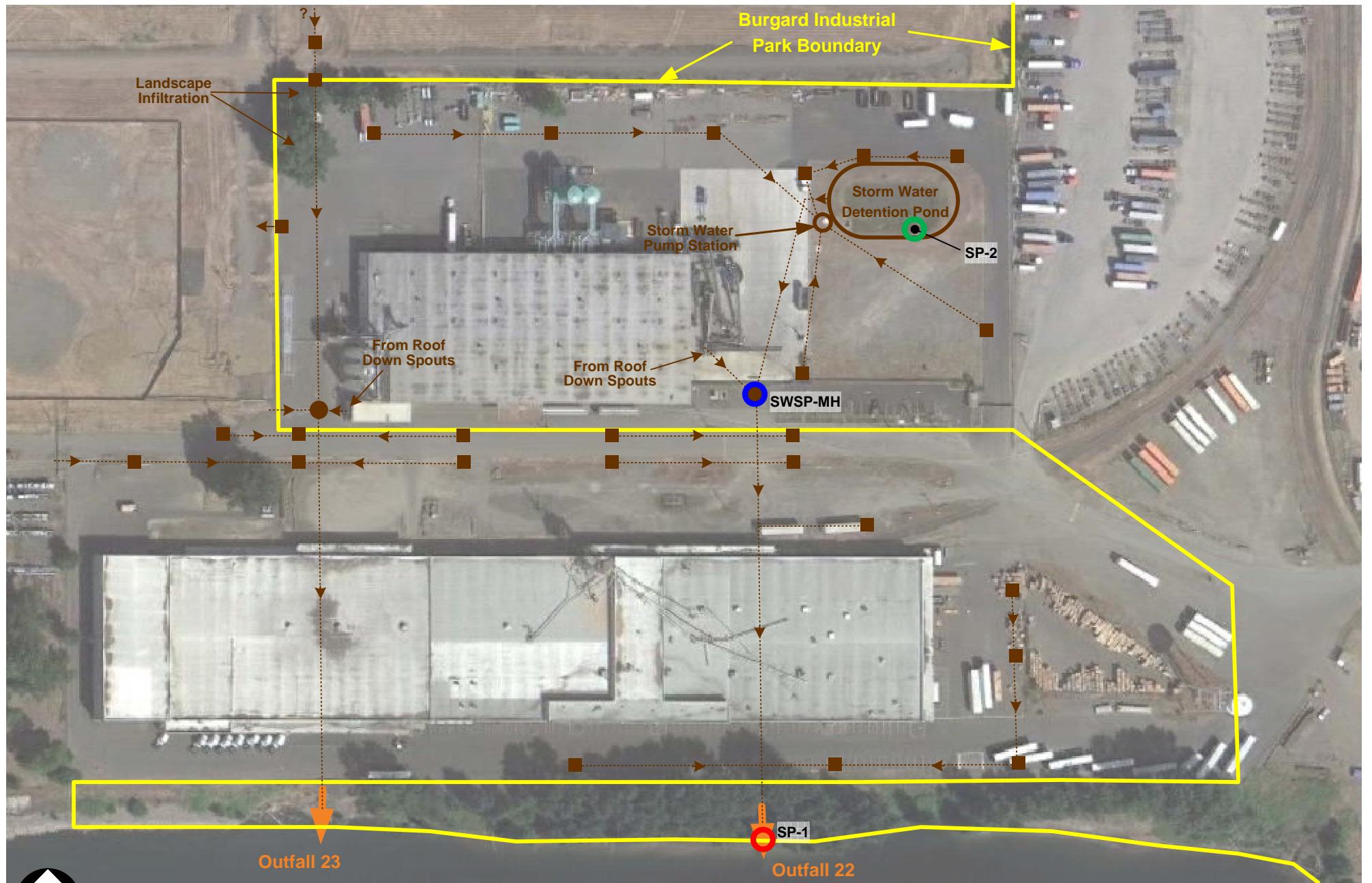


Figure 2
Burgard Industrial Park Site Plan
Portland, Oregon



Approximate Scale

160 feet

Base photograph August 2011

- Catch Basin
- Manhole
- Manhole Solids Sample Location
- Storm Water Sample Location
- Future Pond Water Sample Location

Figure 3

Basin 22 Sample Locations
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

Appendix A – Analytical Laboratory Reports

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Tuesday, December 24, 2013

Ross Rieke
Bridgewater Group
4500 SW Kruse Way; Suite 110
Lake Oswego, OR 97035

RE: Schnitzer-Burgard / 8001-20

Enclosed are the results of analyses for work order A3K0592, which was received by the laboratory on 11/19/2013 at 3:30:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer , please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Philip Nerenberg, Lab Director

Page 1 of 44

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B22-SP1-20131118	A3K0592-01	Water	11/18/13 13:20	11/19/13 15:30
B20-SP-20A-1-20131118	A3K0592-02	Water	11/18/13 14:30	11/19/13 15:30
B18-SP1-20131118	A3K0592-03	Water	11/18/13 15:10	11/19/13 15:30
B19-SP-19-1-20131119	A3K0592-04	Water	11/19/13 09:45	11/19/13 15:30

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SP1-20131118 (A3K0592-01) Matrix: Water Batch: 3110690								
Diesel	ND	0.0990	0.198	mg/L	1	11/24/13 20:59	NWTPH-Dx	
Oil	0.517	0.198	0.396	"	"	"	"	
Surrogate: o-Terphenyl (Surr) Recovery: 93 % Limits: 50-150 % "								
B20-SP-20A-1-20131118 (A3K0592-02) Matrix: Water Batch: 3110690								
Diesel	ND	0.102	0.204	mg/L	1	11/24/13 22:30	NWTPH-Dx	
Oil	1.54	0.204	0.408	"	"	"	"	
Surrogate: o-Terphenyl (Surr) Recovery: 91 % Limits: 50-150 % "								
B18-SP1-20131118 (A3K0592-03) Matrix: Water Batch: 3110690								
Diesel	ND	0.485	0.971	mg/L	5	11/24/13 23:07	NWTPH-Dx	
Oil	2.97	0.971	1.94	"	"	"	"	
Surrogate: o-Terphenyl (Surr) Recovery: 89 % Limits: 50-150 % "								
B19-SP-19-1-20131119 (A3K0592-04) Matrix: Water Batch: 3110690								
Diesel	ND	0.472	0.943	mg/L	5	11/24/13 23:43	NWTPH-Dx	
Oil	2.28	0.943	1.89	"	"	"	"	
Surrogate: o-Terphenyl (Surr) Recovery: 97 % Limits: 50-150 % "								
S-05								

Apex Laboratories

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SP1-20131118 (A3K0592-01) Matrix: Water Batch: 3110613								
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	11/21/13 12:14	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 100 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			101 %	Limits: 50-150 %	"	"	"	
B20-SP-20A-1-20131118 (A3K0592-02) Matrix: Water Batch: 3110613								
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	11/21/13 13:07	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 99 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			101 %	Limits: 50-150 %	"	"	"	
B18-SP1-20131118 (A3K0592-03) Matrix: Water Batch: 3110613								
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	11/21/13 13:33	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 101 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			104 %	Limits: 50-150 %	"	"	"	
B19-SP-19-1-20131119 (A3K0592-04) Matrix: Water Batch: 3110613								
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	11/21/13 13:59	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 100 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			102 %	Limits: 50-150 %	"	"	"	

Apex Laboratories

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Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls -- EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SP1-20131118 (A3K0592-01)			Matrix: Water		Batch: 3120081			C-07
Aroclor 1016	ND	0.00962	0.0192	ug/L	1	12/05/13 10:56	EPA 8082A	
Aroclor 1221	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1232	ND	0.0192	0.0192	"	"	"	"	
Aroclor 1242	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1248	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1254	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1260	ND	0.00962	0.0192	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 71 %</i>		<i>Limits: 40-135 %</i>		"	"	"
B20-SP-20A-1-20131118 (A3K0592-02)			Matrix: Water		Batch: 3120081			C-07
Aroclor 1016	ND	0.00980	0.0196	ug/L	1	12/05/13 11:14	EPA 8082A	
Aroclor 1221	ND	0.00980	0.0196	"	"	"	"	
Aroclor 1232	ND	0.00980	0.0196	"	"	"	"	
Aroclor 1242	0.0212	0.00980	0.0196	"	"	"	"	P-10
Aroclor 1248	ND	0.00980	0.0196	"	"	"	"	
Aroclor 1254	0.0379	0.00980	0.0196	"	"	"	"	P-10
Aroclor 1260	0.0233	0.00980	0.0196	"	"	"	"	P-10
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 63 %</i>		<i>Limits: 40-135 %</i>		"	"	"
B18-SP1-20131118 (A3K0592-03)			Matrix: Water		Batch: 3120081			C-07
Aroclor 1016	ND	0.0194	0.0388	ug/L	1	12/05/13 11:32	EPA 8082A	
Aroclor 1221	ND	0.0194	0.0388	"	"	"	"	
Aroclor 1232	ND	0.0194	0.0388	"	"	"	"	
Aroclor 1242	0.0303	0.0194	0.0388	"	"	"	"	J
Aroclor 1248	ND	0.0194	0.0388	"	"	"	"	
Aroclor 1254	0.0395	0.0194	0.0388	"	"	"	"	P-10
Aroclor 1260	0.0204	0.0194	0.0388	"	"	"	"	J
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 59 %</i>		<i>Limits: 40-135 %</i>		"	"	"
B19-SP-19-1-20131119 (A3K0592-04)			Matrix: Water		Batch: 3120081			C-07
Aroclor 1016	ND	0.0190	0.0381	ug/L	1	12/05/13 11:50	EPA 8082A	
Aroclor 1221	ND	0.0190	0.0381	"	"	"	"	
Aroclor 1232	ND	0.0190	0.0381	"	"	"	"	
Aroclor 1242	0.181	0.0190	0.0381	"	"	"	"	P-10
Aroclor 1248	ND	0.0190	0.0381	"	"	"	"	
Aroclor 1254	0.316	0.0190	0.0381	"	"	"	"	P-10
Aroclor 1260	0.162	0.0190	0.0381	"	"	"	"	P-10

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls -- EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B19-SP-19-1-20131119 (A3K0592-04)			Matrix: Water	Batch: 3120081			EPA 8082A	C-07

Surrogate: Decachlorobiphenyl (Surr)

Recovery: 53 % Limits: 40-135 %

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes	
B22-SP1-20131118 (A3K0592-01RE1)			Matrix: Water		Batch: 3110743			C-05	
Aldrin	ND	0.0101	0.0202	ug/L	1	11/27/13 13:32	EPA 8081B		
alpha-BHC	ND	0.0101	0.0202	"	"	"	"		
beta-BHC	ND	0.0101	0.0202	"	"	"	"		
delta-BHC	ND	0.0101	0.0202	"	"	"	"		
gamma-BHC (Lindane)	ND	0.0101	0.0202	"	"	"	"		
cis-Chlordane	ND	0.0101	0.0202	"	"	"	"		
trans-Chlordane	ND	0.0101	0.0202	"	"	"	"		
4,4'-DDD	ND	0.0101	0.0202	"	"	"	"		
4,4'-DDE	ND	0.0101	0.0202	"	"	"	"		
4,4'-DDT	ND	0.0101	0.0202	"	"	"	"		
Dieldrin	ND	0.0101	0.0202	"	"	"	"		
Endosulfan I	ND	0.0101	0.0202	"	"	"	"		
Endosulfan II	ND	0.0101	0.0202	"	"	"	"		
Endosulfan sulfate	ND	0.0101	0.0202	"	"	"	"		
Endrin	ND	0.0101	0.0202	"	"	"	"		
Endrin Aldehyde	ND	0.0101	0.0202	"	"	"	"		
Endrin ketone	ND	0.0101	0.0202	"	"	"	"		
Heptachlor	ND	0.0101	0.0202	"	"	"	"		
Heptachlor epoxide	ND	0.0101	0.0202	"	"	"	"		
Methoxychlor	ND	0.0303	0.0606	"	"	"	"		
Chlordane (Technical)	ND	0.380	0.758	"	"	"	"		
Toxaphene (Total)	ND	0.380	0.758	"	"	"	"		
cis-Nonachlor	ND	0.0101	0.0202	"	"	"	"		
2,4'-DDD	ND	0.0101	0.0202	"	"	"	"		
2,4'-DDE	ND	0.0101	0.0202	"	"	"	"		
2,4'-DDT	ND	0.0101	0.0202	"	"	"	"		
Hexachlorobenzene	ND	0.0303	0.0606	"	"	"	"		
Hexachlorobutadiene	ND	0.0101	0.0202	"	"	"	"		
Mirex	ND	0.0101	0.0202	"	"	"	"		
Oxychlordane	ND	0.0101	0.0202	"	"	"	"		
trans-Nonachlor	ND	0.0101	0.0202	"	"	"	"		
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 81 %</i>		<i>Limits: 25-140 %</i>		<i>"</i>		<i>"</i>	
<i>Decachlorobiphenyl (Surr)</i>		<i>87 %</i>		<i>Limits: 30-135 %</i>		<i>"</i>		<i>"</i>	

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP-20A-1-20131118 (A3K0592-02RE1)			Matrix: Water		Batch: 3110743			C-05
Aldrin	ND	0.00952	0.0190	ug/L	1	11/27/13 13:50	EPA 8081B	
alpha-BHC	ND	0.00952	0.0190	"	"	"	"	
beta-BHC	ND	0.00952	0.0190	"	"	"	"	
delta-BHC	ND	0.00952	0.0190	"	"	"	"	
gamma-BHC (Lindane)	ND	0.00952	0.0190	"	"	"	"	
cis-Chlordane	ND	0.00952	0.0190	"	"	"	"	
trans-Chlordane	ND	0.00952	0.0190	"	"	"	"	
4,4'-DDD	ND	0.00952	0.0190	"	"	"	"	
4,4'-DDE	ND	0.00952	0.0190	"	"	"	"	
4,4'-DDT	ND	0.00952	0.0190	"	"	"	"	
Dieldrin	ND	0.00952	0.0190	"	"	"	"	
Endosulfan I	ND	0.0286	0.0286	"	"	"	"	R-02
Endosulfan II	ND	0.00952	0.0190	"	"	"	"	
Endosulfan sulfate	ND	0.00952	0.0190	"	"	"	"	
Endrin	ND	0.00952	0.0190	"	"	"	"	
Endrin Aldehyde	ND	0.00952	0.0190	"	"	"	"	
Endrin ketone	ND	0.00952	0.0190	"	"	"	"	
Heptachlor	ND	0.0190	0.0190	"	"	"	"	
Heptachlor epoxide	ND	0.00952	0.0190	"	"	"	"	
Methoxychlor	ND	0.0286	0.0571	"	"	"	"	
Chlordane (Technical)	ND	0.358	0.714	"	"	"	"	
Toxaphene (Total)	ND	0.358	0.714	"	"	"	"	
cis-Nonachlor	ND	0.00952	0.0190	"	"	"	"	
2,4'-DDD	ND	0.00952	0.0190	"	"	"	"	
2,4'-DDE	ND	0.00952	0.0190	"	"	"	"	
2,4'-DDT	ND	0.0190	0.0190	"	"	"	"	
Hexachlorobenzene	ND	0.0286	0.0571	"	"	"	"	
Hexachlorobutadiene	ND	0.00952	0.0190	"	"	"	"	
Mirex	ND	0.00952	0.0190	"	"	"	"	
Oxychlordane	ND	0.00952	0.0190	"	"	"	"	
trans-Nonachlor	ND	0.00952	0.0190	"	"	"	"	

Surrogate: 2,4,5,6-TCMX (Surr)
 Decachlorobiphenyl (Surr)

Recovery: 75 % Limits: 25-140 % "
 86 % Limits: 30-135 % "

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

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 12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes	
B18-SP1-20131118 (A3K0592-03RE1)			Matrix: Water		Batch: 3110743			C-05	
Aldrin	ND	0.00971	0.0194	ug/L	1	11/27/13 14:08	EPA 8081B		
alpha-BHC	ND	0.00971	0.0194	"	"	"	"		
beta-BHC	ND	0.00971	0.0194	"	"	"	"		
delta-BHC	ND	0.00971	0.0194	"	"	"	"		
gamma-BHC (Lindane)	ND	0.00971	0.0194	"	"	"	"		
cis-Chlordane	ND	0.00971	0.0194	"	"	"	"		
trans-Chlordane	ND	0.00971	0.0194	"	"	"	"		
4,4'-DDD	ND	0.00971	0.0194	"	"	"	"		
4,4'-DDE	ND	0.00971	0.0194	"	"	"	"		
4,4'-DDT	ND	0.00971	0.0194	"	"	"	"		
Dieldrin	ND	0.00971	0.0194	"	"	"	"		
Endosulfan I	ND	0.0777	0.0777	"	"	"	"	R-02	
Endosulfan II	ND	0.00971	0.0194	"	"	"	"		
Endosulfan sulfate	ND	0.00971	0.0194	"	"	"	"		
Endrin	ND	0.00971	0.0194	"	"	"	"		
Endrin Aldehyde	ND	0.00971	0.0194	"	"	"	"		
Endrin ketone	ND	0.00971	0.0194	"	"	"	"		
Heptachlor	ND	0.00971	0.0194	"	"	"	"		
Heptachlor epoxide	ND	0.00971	0.0194	"	"	"	"		
Methoxychlor	ND	0.0291	0.0583	"	"	"	"		
Chlordane (Technical)	ND	0.365	0.728	"	"	"	"		
Toxaphene (Total)	ND	0.365	0.728	"	"	"	"		
cis-Nonachlor	ND	0.00971	0.0194	"	"	"	"		
2,4'-DDD	ND	0.00971	0.0194	"	"	"	"		
2,4'-DDE	ND	0.00971	0.0194	"	"	"	"		
2,4'-DDT	ND	0.00971	0.0194	"	"	"	"		
Hexachlorobenzene	ND	0.0291	0.0583	"	"	"	"		
Hexachlorobutadiene	ND	0.00971	0.0194	"	"	"	"		
Mirex	ND	0.00971	0.0194	"	"	"	"		
Oxychlordane	ND	0.00971	0.0194	"	"	"	"		
trans-Nonachlor	ND	0.00971	0.0194	"	"	"	"		
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 73 %</i>		<i>Limits: 25-140 %</i>		<i>"</i>		<i>"</i>	
<i>Decachlorobiphenyl (Surr)</i>		<i>75 %</i>		<i>Limits: 30-135 %</i>		<i>"</i>		<i>"</i>	

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B19-SP-19-1-20131119 (A3K0592-04RE1)			Matrix: Water		Batch: 3110743			C-05
Aldrin	ND	0.00943	0.0189	ug/L	1	11/27/13 14:26	EPA 8081B	
alpha-BHC	ND	0.00943	0.0189	"	"	"	"	
beta-BHC	ND	0.00943	0.0189	"	"	"	"	
delta-BHC	ND	0.00943	0.0189	"	"	"	"	
gamma-BHC (Lindane)	ND	0.00943	0.0189	"	"	"	"	
cis-Chlordane	ND	0.00943	0.0189	"	"	"	"	
trans-Chlordane	ND	0.00943	0.0189	"	"	"	"	
4,4'-DDD	0.0627	0.00943	0.0189	"	"	"	"	
4,4'-DDE	0.0558	0.00943	0.0189	"	"	"	"	
4,4'-DDT	0.123	0.00943	0.0189	"	"	"	"	
Dieldrin	ND	0.00943	0.0189	"	"	"	"	
Endosulfan I	ND	0.0943	0.0943	"	"	"	"	R-02
Endosulfan II	ND	0.00943	0.0189	"	"	"	"	
Endosulfan sulfate	ND	0.00943	0.0189	"	"	"	"	
Endrin	ND	0.00943	0.0189	"	"	"	"	
Endrin Aldehyde	ND	0.00943	0.0189	"	"	"	"	
Endrin ketone	ND	0.00943	0.0189	"	"	"	"	
Heptachlor	ND	0.00943	0.0189	"	"	"	"	
Heptachlor epoxide	ND	0.00943	0.0189	"	"	"	"	
Methoxychlor	ND	0.0283	0.0566	"	"	"	"	
Chlordane (Technical)	ND	0.355	0.708	"	"	"	"	
Toxaphene (Total)	ND	0.355	0.708	"	"	"	"	
cis-Nonachlor	ND	0.0377	0.0377	"	"	"	"	R-02
2,4'-DDD	ND	0.0226	0.0226	"	"	"	"	R-02
2,4'-DDE	ND	0.0189	0.0189	"	"	"	"	
2,4'-DDT	ND	0.0226	0.0226	"	"	"	"	R-02
Hexachlorobenzene	ND	0.0283	0.0566	"	"	"	"	
Hexachlorobutadiene	ND	0.00943	0.0189	"	"	"	"	
Mirex	ND	0.00943	0.0189	"	"	"	"	
Oxychlordane	ND	0.00943	0.0189	"	"	"	"	
trans-Nonachlor	ND	0.00943	0.0189	"	"	"	"	

Surrogate: 2,4,5,6-TCMX (Surr)
 Decachlorobiphenyl (Surr)

Recovery: 80 % Limits: 25-140 %
 85 % Limits: 30-135 %

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group

4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard

Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SP1-20131118 (A3K0592-01RE1)			Matrix: Water		Batch: 3110696			R-04
Acenaphthene	ND	0.0417	0.0833	ug/L	4	11/27/13 15:54	EPA 8270D P/P	
Acenaphthylene	0.0775	0.0417	0.0833	"	"	"	"	J
Anthracene	ND	0.0417	0.0833	"	"	"	"	
Benz(a)anthracene	ND	0.0417	0.0833	"	"	"	"	
Benzo(a)pyrene	0.0484	0.0417	0.0833	"	"	"	"	J
Benzo(b)fluoranthene	ND	0.0417	0.0833	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0417	0.0833	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0417	0.0833	"	"	"	"	
Chrysene	ND	0.0417	0.0833	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0417	0.0833	"	"	"	"	
Fluoranthene	ND	0.0417	0.0833	"	"	"	"	
Fluorene	ND	0.0417	0.0833	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0417	0.0833	"	"	"	"	
1-Methylnaphthalene	ND	0.0833	0.167	"	"	"	"	
2-Methylnaphthalene	ND	0.0833	0.167	"	"	"	"	
Naphthalene	ND	0.0833	0.167	"	"	"	"	
Phenanthrene	ND	0.0417	0.0833	"	"	"	"	
Pyrene	ND	0.0417	0.0833	"	"	"	"	
Carbazole	ND	0.0625	0.125	"	"	"	"	
Dibenzofuran	ND	0.0417	0.0833	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	4.58	9.17	"	"	"	"	
Butyl benzyl phthalate	ND	6.25	12.5	"	"	"	"	
Diethylphthalate	ND	6.25	12.5	"	"	"	"	
Dimethylphthalate	ND	6.25	12.5	"	"	"	"	
Di-n-butylphthalate	ND	6.25	12.5	"	"	"	"	
Di-n-octyl phthalate	ND	6.25	12.5	"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 48 %</i>		<i>Limits: 35-120 %</i>		"	"	"
<i>2-Fluorobiphenyl (Surr)</i>		<i>51 %</i>		<i>Limits: 30-120 %</i>		"	"	"
<i>p-Terphenyl-d14 (Surr)</i>		<i>78 %</i>		<i>Limits: 50-125 %</i>		"	"	"

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Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP-20A-1-20131118 (A3K0592-02RE1)			Matrix: Water		Batch: 3110696			R-04
Acenaphthene	ND	0.0952	0.190	ug/L	10	11/27/13 16:31	EPA 8270D P/P	
Acenaphthylene	ND	0.0952	0.190	"	"	"	"	
Anthracene	ND	0.0952	0.190	"	"	"	"	
Benz(a)anthracene	ND	0.0952	0.190	"	"	"	"	
Benzo(a)pyrene	0.155	0.0952	0.190	"	"	"	"	J
Benzo(b)fluoranthene	0.136	0.0952	0.190	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.0952	0.190	"	"	"	"	
Benzo(g,h,i)perylene	0.0964	0.0952	0.190	"	"	"	"	J
Chrysene	0.125	0.0952	0.190	"	"	"	"	J
Dibenz(a,h)anthracene	ND	0.0952	0.190	"	"	"	"	
Fluoranthene	0.137	0.0952	0.190	"	"	"	"	J
Fluorene	ND	0.0952	0.190	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0952	0.190	"	"	"	"	
1-Methylnaphthalene	ND	0.190	0.381	"	"	"	"	
2-Methylnaphthalene	ND	0.190	0.381	"	"	"	"	
Naphthalene	ND	0.190	0.381	"	"	"	"	
Phenanthrene	ND	0.0952	0.190	"	"	"	"	
Pyrene	0.171	0.0952	0.190	"	"	"	"	J
Carbazole	ND	0.143	0.286	"	"	"	"	
Dibenzofuran	ND	0.0952	0.190	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	10.5	21.0	"	"	"	"	
Butyl benzyl phthalate	ND	14.3	28.6	"	"	"	"	
Diethylphthalate	ND	14.3	28.6	"	"	"	"	
Dimethylphthalate	ND	14.3	28.6	"	"	"	"	
Di-n-butylphthalate	ND	14.3	28.6	"	"	"	"	
Di-n-octyl phthalate	ND	14.3	28.6	"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 44 %</i>		<i>Limits: 35-120 %</i>		"	"	"
<i>2-Fluorobiphenyl (Surr)</i>		<i>55 %</i>		<i>Limits: 30-120 %</i>		"	"	"
<i>p-Terphenyl-d14 (Surr)</i>		<i>70 %</i>		<i>Limits: 50-125 %</i>		"	"	"

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group

4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard

Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B18-SP1-20131118 (A3K0592-03RE1)			Matrix: Water		Batch: 3110696			
Acenaphthene	ND	0.198	0.396	ug/L	4	11/27/13 17:07	EPA 8270D P/P	
Acenaphthylene	ND	0.198	0.396	"	"	"	"	
Anthracene	ND	0.198	0.396	"	"	"	"	
Benz(a)anthracene	ND	0.198	0.396	"	"	"	"	
Benzo(a)pyrene	0.305	0.198	0.396	"	"	"	"	J
Benzo(b)fluoranthene	0.237	0.198	0.396	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.198	0.396	"	"	"	"	
Benzo(g,h,i)perylene	0.235	0.198	0.396	"	"	"	"	J
Chrysene	0.286	0.198	0.396	"	"	"	"	J
Dibenz(a,h)anthracene	ND	0.198	0.396	"	"	"	"	
Fluoranthene	0.303	0.198	0.396	"	"	"	"	J
Fluorene	ND	0.198	0.396	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.198	0.396	"	"	"	"	
1-Methylnaphthalene	ND	0.396	0.792	"	"	"	"	
2-Methylnaphthalene	ND	0.396	0.792	"	"	"	"	
Naphthalene	ND	0.396	0.792	"	"	"	"	
Phenanthrene	ND	0.198	0.396	"	"	"	"	
Pyrene	0.424	0.198	0.396	"	"	"	"	
Carbazole	ND	0.297	0.594	"	"	"	"	
Dibenzofuran	ND	0.198	0.396	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	21.8	43.6	"	"	"	"	
Butyl benzyl phthalate	ND	29.7	59.4	"	"	"	"	
Diethylphthalate	ND	29.7	59.4	"	"	"	"	
Dimethylphthalate	ND	29.7	59.4	"	"	"	"	
Di-n-butylphthalate	ND	29.7	59.4	"	"	"	"	
Di-n-octyl phthalate	ND	29.7	59.4	"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 74 %</i>		<i>Limits: 35-120 %</i>		"	"	"
<i>2-Fluorobiphenyl (Surr)</i>		<i>65 %</i>		<i>Limits: 30-120 %</i>		"	"	"
<i>p-Terphenyl-d14 (Surr)</i>		<i>84 %</i>		<i>Limits: 50-125 %</i>		"	"	"

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group

4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard

Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B19-SP-19-1-20131119 (A3K0592-04RE1)			Matrix: Water		Batch: 3110696			
Acenaphthene	ND	0.0755	0.151	ug/L	4	11/27/13 17:44	EPA 8270D P/P	
Acenaphthylene	ND	0.0755	0.151	"	"	"	"	
Anthracene	0.0958	0.0755	0.151	"	"	"	"	J
Benz(a)anthracene	0.362	0.0755	0.151	"	"	"	"	
Benzo(a)pyrene	0.471	0.0755	0.151	"	"	"	"	
Benzo(b)fluoranthene	0.974	0.0755	0.151	"	"	"	"	
Benzo(k)fluoranthene	0.293	0.0755	0.151	"	"	"	"	
Benzo(g,h,i)perylene	0.543	0.0755	0.151	"	"	"	"	
Chrysene	0.777	0.0755	0.151	"	"	"	"	
Dibenz(a,h)anthracene	0.114	0.0755	0.151	"	"	"	"	J
Fluoranthene	0.760	0.0755	0.151	"	"	"	"	
Fluorene	ND	0.0755	0.151	"	"	"	"	
Indeno(1,2,3-cd)pyrene	0.432	0.0755	0.151	"	"	"	"	
1-Methylnaphthalene	ND	0.151	0.302	"	"	"	"	
2-Methylnaphthalene	ND	0.151	0.302	"	"	"	"	
Naphthalene	ND	0.151	0.302	"	"	"	"	
Phenanthrene	0.214	0.0755	0.151	"	"	"	"	
Pyrene	0.843	0.0755	0.151	"	"	"	"	
Carbazole	ND	0.113	0.226	"	"	"	"	
Dibenzofuran	ND	0.0755	0.151	"	"	"	"	
Bis(2-ethylhexyl)phthalate	14.4	8.30	16.6	"	"	"	"	J
Butyl benzyl phthalate	ND	11.3	22.6	"	"	"	"	
Diethylphthalate	ND	11.3	22.6	"	"	"	"	
Dimethylphthalate	ND	11.3	22.6	"	"	"	"	
Di-n-butylphthalate	ND	11.3	22.6	"	"	"	"	
Di-n-octyl phthalate	ND	11.3	22.6	"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 57 %</i>		<i>Limits: 35-120 %</i>		"	"	"
<i>2-Fluorobiphenyl (Surr)</i>		<i>55 %</i>		<i>Limits: 30-120 %</i>		"	"	"
<i>p-Terphenyl-d14 (Surr)</i>		<i>85 %</i>		<i>Limits: 50-125 %</i>		"	"	"

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SP1-20131118 (A3K0592-01)		Matrix: Water						
Batch: 3120396								
Aluminum	322	25.0	50.0	ug/L	1	12/18/13 18:37	EPA 6020A	
Antimony	ND	0.500	1.00	"	"	"	"	
Arsenic	ND	0.500	1.00	"	"	"	"	
Cadmium	0.956	0.0400	1.00	"	"	"	"	J
Chromium	1.96	0.500	2.00	"	"	"	"	J
Copper	6.52	0.500	1.00	"	"	"	"	
Lead	2.34	0.100	0.200	"	"	"	"	
Manganese	27.6	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	H-01
Nickel	1.03	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	79.7	2.00	4.00	"	"	"	"	
B20-SP-20A-1-20131118 (A3K0592-02)		Matrix: Water						
Batch: 3120464								
Aluminum	1880	25.0	50.0	ug/L	1	12/19/13 16:35	EPA 6020A	
Antimony	1.20	0.500	1.00	"	"	"	"	
Arsenic	1.03	0.500	1.00	"	"	"	"	
Cadmium	0.422	0.0400	0.200	"	"	"	"	
Chromium	18.3	0.500	1.00	"	"	12/21/13 15:14	"	
Copper	25.0	0.500	1.00	"	"	12/19/13 16:35	"	
Lead	23.8	0.100	0.200	"	"	"	"	
Manganese	222	0.500	1.00	"	"	12/21/13 15:14	"	
Mercury	ND	0.0400	0.0800	"	"	12/19/13 16:35	"	H-01
Nickel	3.71	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	159	2.00	4.00	"	"	"	"	
B18-SP1-20131118 (A3K0592-03)		Matrix: Water						
Batch: 3120396								
Aluminum	7340	25.0	50.0	ug/L	1	12/18/13 18:39	EPA 6020A	
Antimony	0.867	0.500	1.00	"	"	"	"	J
Arsenic	1.18	0.500	1.00	"	"	"	"	
Cadmium	0.511	0.0400	1.00	"	"	"	"	J
Chromium	41.0	0.500	2.00	"	"	"	"	
Copper	43.2	0.500	1.00	"	"	"	"	
Lead	32.0	0.100	0.200	"	"	"	"	

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

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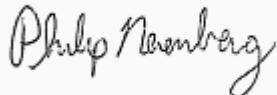
ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B18-SP1-20131118 (A3K0592-03)								
Manganese	581	0.500	1.00	ug/L	1	"	EPA 6020A	
Mercury	ND	0.0400	0.0800	"	"	"	"	H-01
Nickel	13.0	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	346	2.00	4.00	"	"	"	"	
B19-SP-19-1-20131119 (A3K0592-04)								
Batch: 3120396								
Aluminum	3830	25.0	50.0	ug/L	1	12/18/13 18:42	EPA 6020A	
Antimony	4.31	0.500	1.00	"	"	"	"	
Arsenic	2.34	0.500	1.00	"	"	"	"	
Cadmium	1.71	0.0400	1.00	"	"	"	"	
Chromium	25.3	0.500	2.00	"	"	"	"	
Copper	94.4	0.500	1.00	"	"	"	"	
Lead	173	0.100	0.200	"	"	"	"	
Manganese	416	0.500	1.00	"	"	"	"	
Mercury	0.217	0.0400	0.0800	"	"	"	"	H-01
Nickel	12.2	0.500	1.00	"	"	"	"	
Silver	0.178	0.100	0.200	"	"	"	"	J
Zinc	569	2.00	4.00	"	"	"	"	

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SP1-20131118 (A3K0592-01)		Matrix: Water						
Batch: 3120388								
Aluminum	27.6	25.0	50.0	ug/L	1	12/17/13 19:23	EPA 6020A (Diss)	J
Antimony	ND	0.500	1.00	"	"	"	"	
Arsenic	ND	0.500	1.00	"	"	"	"	
Cadmium	0.100	0.0400	0.200	"	"	"	"	J
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	5.12	0.500	1.00	"	"	"	"	
Lead	0.356	0.100	0.200	"	"	"	"	Q-23
Manganese	17.3	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	H-01
Nickel	0.744	0.500	1.00	"	"	"	"	J
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	68.2	2.00	4.00	"	"	"	"	
B20-SP-20A-1-20131118 (A3K0592-02)		Matrix: Water						
Batch: 3120388								
Aluminum	78.7	25.0	50.0	ug/L	1	12/17/13 19:31	EPA 6020A (Diss)	
Antimony	0.722	0.500	1.00	"	"	"	"	J
Arsenic	ND	0.500	1.00	"	"	"	"	
Cadmium	0.122	0.0400	0.200	"	"	"	"	J
Chromium	1.18	0.500	1.00	"	"	"	"	
Copper	9.80	0.500	1.00	"	"	"	"	
Lead	0.678	0.100	0.200	"	"	"	"	Q-23
Manganese	55.6	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	H-01
Nickel	1.61	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	51.7	2.00	4.00	"	"	"	"	
B18-SP1-20131118 (A3K0592-03)		Matrix: Water						
Batch: 3120388								
Aluminum	71.4	25.0	50.0	ug/L	1	12/17/13 19:34	EPA 6020A (Diss)	
Antimony	ND	0.500	1.00	"	"	"	"	
Arsenic	ND	0.500	1.00	"	"	"	"	
Cadmium	0.0444	0.0400	0.200	"	"	"	"	J
Chromium	0.522	0.500	1.00	"	"	"	"	J
Copper	6.66	0.500	1.00	"	"	"	"	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
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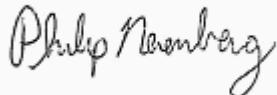
ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B18-SP1-20131118 (A3K0592-03)								
			Matrix: Water					
Lead	0.289	0.100	0.200	ug/L	1	"	EPA 6020A (Diss)	Q-23
Manganese	41.6	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	H-01
Nickel	1.27	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	36.5	2.00	4.00	"	"	"	"	
B19-SP-19-1-20131119 (A3K0592-04)								
			Matrix: Water					
Batch: 3120388								
Aluminum	76.2	25.0	50.0	ug/L	1	12/17/13 19:37	EPA 6020A (Diss)	
Antimony	1.80	0.500	1.00	"	"	"	"	Q-23
Arsenic	0.700	0.500	1.00	"	"	"	"	J
Cadmium	0.0444	0.0400	0.200	"	"	"	"	J
Chromium	1.26	0.500	1.00	"	"	"	"	
Copper	6.22	0.500	1.00	"	"	"	"	
Lead	1.67	0.100	0.200	"	"	"	"	Q-23
Manganese	12.9	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	0.644	0.500	1.00	"	"	"	"	J
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	10.3	2.00	4.00	"	"	"	"	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

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Reported:
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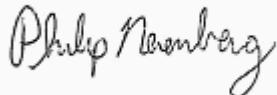
ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SP1-20131118 (A3K0592-01) Matrix: Water								
Batch: 3110625								
Total Suspended Solids	ND	5.00	5.00	mg/L	1	11/25/13 16:16	SM 2540 D	
Batch: 3110705								
Total Organic Carbon	8.48	1.00	1.00	"	"	11/27/13 23:35	SM 5310 B	
B20-SP-20A-1-20131118 (A3K0592-02) Matrix: Water								
Batch: 3110625								
Total Suspended Solids	49.0	5.00	5.00	mg/L	1	11/25/13 16:16	SM 2540 D	
Batch: 3110705								
Total Organic Carbon	14.7	1.00	1.00	"	"	11/28/13 06:24	SM 5310 B	
B18-SP1-20131118 (A3K0592-03) Matrix: Water								
Batch: 3110625								
Total Suspended Solids	300	10.0	10.0	mg/L	1	11/25/13 16:16	SM 2540 D	
Batch: 3110705								
Total Organic Carbon	5.50	1.00	1.00	"	"	11/27/13 22:03	SM 5310 B	
B19-SP-19-1-20131119 (A3K0592-04) Matrix: Water								
Batch: 3110705								
Total Organic Carbon	4.24	1.00	1.00	mg/L	1	11/27/13 22:27	SM 5310 B	
Batch: 3110750								
Total Suspended Solids	60.0	5.00	5.00	"	"	11/27/13 10:58	SM 2540 D	

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110690 - EPA 3510C (Acid Extraction)												
Water												
Blank (3110690-BLK1)												
Prepared: 11/23/13 12:57 Analyzed: 11/24/13 15:49												
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	---
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	---
Surr: o-Terphenyl (Surr)												
Recovery: 86 % Limits: 50-150 % Dilution: 1x												
LCS (3110690-BS1)												
Prepared: 11/23/13 12:57 Analyzed: 11/24/13 16:07												
NWTPH-Dx												
Diesel	0.950	0.100	0.200	mg/L	1	1.25	---	76	58-115%	---	---	---
Surr: o-Terphenyl (Surr)												
Recovery: 91 % Limits: 50-150 % Dilution: 1x												
LCS Dup (3110690-BSD1)												
Prepared: 11/23/13 12:57 Analyzed: 11/24/13 16:26 Q-19												
NWTPH-Dx												
Diesel	1.05	0.100	0.200	mg/L	1	1.25	---	84	58-115%	10	20%	
Surr: o-Terphenyl (Surr)												
Recovery: 88 % Limits: 50-150 % Dilution: 1x												

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	------	--------------	---------------	------	-------------	-----	-----------	-------

Batch 3110613 - EPA 5030B

Water

Blank (3110613-BLK1) Prepared: 11/21/13 09:00 Analyzed: 11/21/13 11:48

NWTPH-Gx (MS)

Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	---
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 103 %	Limits: 50-150 %			Dilution: 1x					
1,4-Difluorobenzene (Sur)			104 %	50-150 %			"					

LCS (3110613-BS2)

Prepared: 11/21/13 09:00 Analyzed: 11/21/13 11:21

NWTPH-Gx (MS)

Gasoline Range Organics	0.598	0.0500	0.100	mg/L	1	0.500	---	120	70-130%	---	---	---
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 101 %	Limits: 50-150 %			Dilution: 1x					
1,4-Difluorobenzene (Sur)			101 %	50-150 %			"					

Duplicate (3110613-DUP1)

Prepared: 11/21/13 10:00 Analyzed: 11/21/13 12:40

QC Source Sample: B22-SP1-20131118 (A3K0592-01)

NWTPH-Gx (MS)

Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	ND	---	---	---	30%	---
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 104 %	Limits: 50-150 %			Dilution: 1x					
1,4-Difluorobenzene (Sur)			104 %	50-150 %			"					

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls -- EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3120081 - EPA 3510C (Neutral pH)												
Water												
Blank (3120081-BLK1)												C-07
EPA 8082A												
Aroclor 1016	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	---
Aroclor 1221	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Aroclor 1232	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Aroclor 1242	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Aroclor 1248	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Aroclor 1254	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Aroclor 1260	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
<i>Surr: Decachlorobiphenyl (Surr)</i>				<i>Recovery: 74 %</i>		<i>Limits: 40-135 %</i>		<i>Dilution: 1x</i>				
LCS (3120081-BS1)												C-07
EPA 8082A												
Aroclor 1016	0.943	0.0100	0.0200	ug/L	1	1.25	---	75	40-140%	---	---	---
Aroclor 1260	0.830	0.0100	0.0200	"	"	"	---	66	"	---	---	---
<i>Surr: Decachlorobiphenyl (Surr)</i>				<i>Recovery: 67 %</i>		<i>Limits: 40-135 %</i>		<i>Dilution: 1x</i>				
LCS Dup (3120081-BSD1)												C-07, Q-19
EPA 8082A												
Aroclor 1016	0.956	0.0100	0.0200	ug/L	1	1.25	---	76	40-140%	1	30%	
Aroclor 1260	0.837	0.0100	0.0200	"	"	"	---	67	"	0.8	30%	
<i>Surr: Decachlorobiphenyl (Surr)</i>				<i>Recovery: 62 %</i>		<i>Limits: 40-135 %</i>		<i>Dilution: 1x</i>				

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
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Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110743 - EPA 3510C (Neutral pH)/3640A (GPC)												
Water												
Blank (3110743-BLK1)							Prepared: 11/25/13 14:31	Analyzed: 11/27/13 12:04				C-05
EPA 8081B												
Aldrin	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	---
alpha-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
beta-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
delta-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
gamma-BHC (Lindane)	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
cis-Chlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
trans-Chlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
4,4'-DDD	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
4,4'-DDE	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
4,4'-DDT	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Dieldrin	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Endosulfan I	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Endosulfan II	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Endosulfan sulfate	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Endrin	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Endrin Aldehyde	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Endrin ketone	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Heptachlor	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Heptachlor epoxide	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Methoxychlor	ND	0.0273	0.0545	"	"	---	---	---	---	---	---	---
Chlordane (Technical)	ND	0.342	0.682	"	"	---	---	---	---	---	---	---
Toxaphene (Total)	ND	0.342	0.682	"	"	---	---	---	---	---	---	---
cis-Nonachlor	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
2,4'-DDD	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
2,4'-DDE	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
2,4'-DDT	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Hexachlorobenzene	ND	0.0273	0.0545	"	"	---	---	---	---	---	---	---
Hexachlorobutadiene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Mirex	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Oxychlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110743 - EPA 3510C (Neutral pH)/3640A (GPC)												
Water												
Blank (3110743-BLK1)												C-05
trans-Nonachlor	ND	0.00909	0.0182	ug/L	"	---	---	---	---	---	---	---
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 69 %</i>		<i>Limits: 25-140 %</i>		<i>Dilution: 1x</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>92 %</i>		<i>30-135 %</i>		<i>"</i>					
LCS (3110743-BS1)												C-05
EPA 8081B												
Aldrin	0.367	0.0100	0.0200	ug/L	1	0.500	---	73	25-140%	---	---	---
alpha-BHC	0.421	0.0100	0.0200	"	"	"	---	84	60-130%	---	---	---
beta-BHC	0.402	0.0100	0.0200	"	"	"	---	80	65-125%	---	---	---
delta-BHC	0.448	0.0100	0.0200	"	"	"	---	90	45-135%	---	---	---
gamma-BHC (Lindane)	0.428	0.0100	0.0200	"	"	"	---	86	25-135%	---	---	---
cis-Chlordane	0.419	0.0100	0.0200	"	"	"	---	84	65-125%	---	---	---
trans-Chlordane	0.420	0.0100	0.0200	"	"	"	---	84	60-125%	---	---	---
4,4'-DDD	0.476	0.0100	0.0200	"	"	"	---	95	25-150%	---	---	---
4,4'-DDE	0.432	0.0100	0.0200	"	"	"	---	86	35-140%	---	---	---
4,4'-DDT	0.530	0.0100	0.0200	"	"	"	---	106	45-140%	---	---	---
Dieldrin	0.456	0.0100	0.0200	"	"	"	---	91	60-130%	---	---	---
Endosulfan I	0.421	0.0100	0.0200	"	"	"	---	84	50-110%	---	---	---
Endosulfan II	0.465	0.0100	0.0200	"	"	"	---	93	30-130%	---	---	---
Endosulfan sulfate	0.443	0.0100	0.0200	"	"	"	---	89	55-135%	---	---	---
Endrin	0.480	0.0100	0.0200	"	"	"	---	96	"	---	---	---
Endrin Aldehyde	0.414	0.0100	0.0200	"	"	"	---	83	"	---	---	---
Endrin ketone	0.448	0.0100	0.0200	"	"	"	---	90	75-125%	---	---	---
Heptachlor	0.404	0.0100	0.0200	"	"	"	---	81	40-130%	---	---	---
Heptachlor epoxide	0.421	0.0100	0.0200	"	"	"	---	84	60-130%	---	---	---
Methoxychlor	0.540	0.0300	0.0600	"	"	"	---	108	55-150%	---	---	---
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 67 %</i>		<i>Limits: 25-140 %</i>		<i>Dilution: 1x</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>77 %</i>		<i>30-135 %</i>		<i>"</i>					
LCS (3110743-BS2)												C-05
EPA 8081B												
cis-Nonachlor	0.416	0.0100	0.0200	ug/L	1	0.500	---	83	25-120%	---	---	---

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 Tigard, OR 97223
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 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110743 - EPA 3510C (Neutral pH)/3640A (GPC)												
Water												
LCS (3110743-BS2)												C-05
2,4'-DDD	0.401	0.0100	0.0200	ug/L	"	"	---	80	30-135%	---	---	
2,4'-DDE	0.394	0.0100	0.0200	"	"	"	---	79	50-140%	---	---	
2,4'-DDT	0.466	0.0100	0.0200	"	"	"	---	93	45-140%	---	---	
Hexachlorobenzene	0.352	0.0300	0.0600	"	"	"	---	70	25-120%	---	---	
Hexachlorobutadiene	0.224	0.0100	0.0200	"	"	"	---	45	"	---	---	
Mirex	0.364	0.0100	0.0200	"	"	"	---	73	"	---	---	
Oxychlordane	0.402	0.0100	0.0200	"	"	"	---	80	"	---	---	
trans-Nonachlor	0.395	0.0100	0.0200	"	"	"	---	79	"	---	---	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 76 %</i>		<i>Limits: 25-140 %</i>			<i>Dilution: 1x</i>				
<i>Decachlorobiphenyl (Surr)</i>			<i>85 %</i>		<i>30-135 %</i>			<i>"</i>				
LCS Dup (3110743-BSD1)												C-05, Q-19
EPA 8081B												
Aldrin	0.399	0.0100	0.0200	ug/L	1	0.500	---	80	25-140%	8	30%	
alpha-BHC	0.449	0.0100	0.0200	"	"	"	---	90	60-130%	6	30%	
beta-BHC	0.433	0.0100	0.0200	"	"	"	---	87	65-125%	7	30%	
delta-BHC	0.477	0.0100	0.0200	"	"	"	---	95	45-135%	6	30%	
gamma-BHC (Lindane)	0.443	0.0100	0.0200	"	"	"	---	89	25-135%	4	30%	
cis-Chlordane	0.457	0.0100	0.0200	"	"	"	---	91	65-125%	9	30%	
trans-Chlordane	0.450	0.0100	0.0200	"	"	"	---	90	60-125%	7	30%	
4,4'-DDD	0.530	0.0100	0.0200	"	"	"	---	106	25-150%	11	30%	
4,4'-DDE	0.482	0.0100	0.0200	"	"	"	---	96	35-140%	11	30%	
4,4'-DDT	0.584	0.0100	0.0200	"	"	"	---	117	45-140%	10	30%	
Dieldrin	0.482	0.0100	0.0200	"	"	"	---	96	60-130%	6	30%	
Endosulfan I	0.457	0.0100	0.0200	"	"	"	---	91	50-110%	8	30%	
Endosulfan II	0.516	0.0100	0.0200	"	"	"	---	103	30-130%	10	30%	
Endosulfan sulfate	0.499	0.0100	0.0200	"	"	"	---	100	55-135%	12	30%	
Endrin	0.526	0.0100	0.0200	"	"	"	---	105	"	9	30%	
Endrin Aldehyde	0.464	0.0100	0.0200	"	"	"	---	93	"	11	30%	
Endrin ketone	0.490	0.0100	0.0200	"	"	"	---	98	75-125%	9	30%	
Heptachlor	0.432	0.0100	0.0200	"	"	"	---	86	40-130%	7	30%	
Heptachlor epoxide	0.458	0.0100	0.0200	"	"	"	---	92	60-130%	8	30%	

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Tigard, OR 97223
503-718-2323 Phone
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Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110743 - EPA 3510C (Neutral pH)/3640A (GPC)												
Water												
LCS Dup (3110743-BSD1)							Prepared: 11/25/13 14:31	Analyzed: 11/27/13 12:39				C-05, Q-19
Methoxychlor	0.614	0.0300	0.0600	"	"	"	---	123	55-150%	13	30%	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>				<i>Recovery: 68 %</i>	<i>Limits: 25-140 %</i>		<i>Dilution: 1x</i>					
<i>Decachlorobiphenyl (Surr)</i>				<i>82 %</i>	<i>30-135 %</i>		<i>"</i>					
LCS Dup (3110743-BSD2)							Prepared: 11/25/13 14:31	Analyzed: 11/27/13 13:15				C-05, Q-19
EPA 8081B												
cis-Nonachlor	0.449	0.0100	0.0200	ug/L	1	0.500	---	90	25-120%	8	30%	
2,4'-DDD	0.465	0.0100	0.0200	"	"	"	---	93	30-135%	15	30%	
2,4'-DDE	0.441	0.0100	0.0200	"	"	"	---	88	50-140%	11	30%	
2,4'-DDT	0.518	0.0100	0.0200	"	"	"	---	104	45-140%	11	30%	
Hexachlorobenzene	0.384	0.0300	0.0600	"	"	"	---	77	25-120%	9	30%	
Hexachlorobutadiene	0.205	0.0100	0.0200	"	"	"	---	41	"	9	30%	
Mirex	0.396	0.0100	0.0200	"	"	"	---	79	"	8	30%	
Oxychlordane	0.431	0.0100	0.0200	"	"	"	---	86	"	7	30%	
trans-Nonachlor	0.428	0.0100	0.0200	"	"	"	---	86	"	8	30%	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>				<i>Recovery: 77 %</i>	<i>Limits: 25-140 %</i>		<i>Dilution: 1x</i>					
<i>Decachlorobiphenyl (Surr)</i>				<i>91 %</i>	<i>30-135 %</i>		<i>"</i>					

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Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110696 - EPA 3510C (Acid Extraction)												
Water												
Blank (3110696-BLK2)												
Prepared: 11/25/13 07:08 Analyzed: 11/26/13 17:11												
EPA 8270D P/P												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	---
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Benzo(a)pyrene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	---
Benzo(b)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	---
Benzo(k)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	---
Benzo(b+k)fluoranthene(s)	ND	0.0273	0.0545	"	"	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	---
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	---
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	---
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Carbazole	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	---
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	---
Bis(2-ethylhexyl)phthalate	ND	1.00	2.00	"	"	---	---	---	---	---	---	---
Butyl benzyl phthalate	ND	1.36	2.73	"	"	---	---	---	---	---	---	---
Diethylphthalate	ND	1.36	2.73	"	"	---	---	---	---	---	---	---
Dimethylphthalate	ND	1.36	2.73	"	"	---	---	---	---	---	---	---
Di-n-butylphthalate	ND	1.36	2.73	"	"	---	---	---	---	---	---	---
Di-n-octyl phthalate	ND	1.36	2.73	"	"	---	---	---	---	---	---	---

Surr: Nitrobenzene-d5 (Surr)
2-Fluorobiphenyl (Surr)
p-Terphenyl-d14 (Surr)

Recovery: 78 % *Limits: 35-120 %* *Dilution: 1x*
70 % *30-120 %* "
87 % *50-125 %* "

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110696 - EPA 3510C (Acid Extraction)												
Water												
LCS (3110696-BS2)												
Prepared: 11/25/13 07:08 Analyzed: 11/26/13 17:47												
EPA 8270D P/P												
Acenaphthene	2.97	0.0100	0.0200	ug/L	1	4.00	---	74	45-125%	---	---	
Acenaphthylene	3.03	0.0100	0.0200	"	"	"	---	76	50-125%	---	---	
Anthracene	3.23	0.0100	0.0200	"	"	"	---	81	55-125%	---	---	
Benz(a)anthracene	3.80	0.0100	0.0200	"	"	"	---	95	"	---	---	
Benzo(a)pyrene	3.27	0.0150	0.0300	"	"	"	---	82	"	---	---	
Benzo(b)fluoranthene	3.57	0.0150	0.0300	"	"	"	---	89	45-125%	---	---	
Benzo(k)fluoranthene	3.47	0.0150	0.0300	"	"	"	---	87	"	---	---	
Benzo(b+k)fluoranthene(s)	7.00	0.0300	0.0600	"	"	8.00	---	87	"	---	---	
Benzo(g,h,i)perylene	3.40	0.0100	0.0200	"	"	4.00	---	85	40-125%	---	---	
Chrysene	3.79	0.0100	0.0200	"	"	"	---	95	55-125%	---	---	
Dibenz(a,h)anthracene	4.03	0.0100	0.0200	"	"	"	---	101	40-125%	---	---	
Fluoranthene	3.45	0.0100	0.0200	"	"	"	---	86	55-125%	---	---	
Fluorene	3.04	0.0100	0.0200	"	"	"	---	76	50-125%	---	---	
Indeno(1,2,3-cd)pyrene	3.58	0.0100	0.0200	"	"	"	---	89	45-125%	---	---	
1-Methylnaphthalene	2.70	0.0200	0.0400	"	"	"	---	68	45-120%	---	---	
2-Methylnaphthalene	2.73	0.0200	0.0400	"	"	"	---	68	"	---	---	
Naphthalene	2.54	0.0200	0.0400	"	"	"	---	63	40-125%	---	---	
Phenanthrene	3.28	0.0100	0.0200	"	"	"	---	82	50-125%	---	---	
Pyrene	3.43	0.0100	0.0200	"	"	"	---	86	"	---	---	
Carbazole	3.80	0.0150	0.0300	"	"	"	---	95	"	---	---	
Dibenzofuran	3.07	0.0100	0.0200	"	"	"	---	77	55-125%	---	---	
Bis(2-ethylhexyl)phthalate	3.53	1.10	2.20	"	"	"	---	88	40-125%	---	---	
Butyl benzyl phthalate	3.78	1.50	3.00	"	"	"	---	94	45-125%	---	---	
Diethylphthalate	3.38	1.50	3.00	"	"	"	---	84	40-125%	---	---	
Dimethylphthalate	3.42	1.50	3.00	"	"	"	---	85	25-125%	---	---	
Di-n-butylphthalate	3.40	1.50	3.00	"	"	"	---	85	55-125%	---	---	
Di-n-octyl phthalate	3.53	1.50	3.00	"	"	"	---	88	35-125%	---	---	

Surr: Nitrobenzene-d5 (Surr)
2-Fluorobiphenyl (Surr)
p-Terphenyl-d14 (Surr)

Recovery: 82 % *Limits: 35-120 %* *Dilution: 1x*
72 % *30-120 %* "
86 % *50-125 %* "

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110696 - EPA 3510C (Acid Extraction)												
Water												
LCS Dup (3110696-BSD2)							Prepared: 11/25/13 07:08	Analyzed: 11/26/13 18:24				Q-19
EPA 8270D P/P												
Acenaphthene	2.75	0.0100	0.0200	ug/L	1	4.00	---	69	45-125%	8	30%	
Acenaphthylene	2.79	0.0100	0.0200	"	"	"	---	70	50-125%	8	30%	
Anthracene	3.17	0.0100	0.0200	"	"	"	---	79	55-125%	2	30%	
Benz(a)anthracene	3.86	0.0100	0.0200	"	"	"	---	97	"	2	30%	
Benzo(a)pyrene	3.33	0.0150	0.0300	"	"	"	---	83	"	2	30%	
Benzo(b)fluoranthene	3.62	0.0150	0.0300	"	"	"	---	90	45-125%	1	30%	
Benzo(k)fluoranthene	3.51	0.0150	0.0300	"	"	"	---	88	"	1	30%	
Benzo(b+k)fluoranthene(s)	7.09	0.0300	0.0600	"	"	8.00	---	89	"	1	30%	
Benzo(g,h,i)perylene	3.53	0.0100	0.0200	"	"	4.00	---	88	40-125%	4	30%	
Chrysene	3.88	0.0100	0.0200	"	"	"	---	97	55-125%	2	30%	
Dibenz(a,h)anthracene	4.19	0.0100	0.0200	"	"	"	---	105	40-125%	4	30%	
Fluoranthene	3.51	0.0100	0.0200	"	"	"	---	88	55-125%	2	30%	
Fluorene	2.89	0.0100	0.0200	"	"	"	---	72	50-125%	5	30%	
Indeno(1,2,3-cd)pyrene	3.65	0.0100	0.0200	"	"	"	---	91	45-125%	2	30%	
1-Methylnaphthalene	2.52	0.0200	0.0400	"	"	"	---	63	45-120%	7	30%	
2-Methylnaphthalene	2.59	0.0200	0.0400	"	"	"	---	65	"	5	30%	
Naphthalene	2.34	0.0200	0.0400	"	"	"	---	59	40-125%	8	30%	
Phenanthrene	3.25	0.0100	0.0200	"	"	"	---	81	50-125%	1	30%	
Pyrene	3.51	0.0100	0.0200	"	"	"	---	88	"	3	30%	
Carbazole	3.99	0.0150	0.0300	"	"	"	---	100	"	5	30%	
Dibenzofuran	2.84	0.0100	0.0200	"	"	"	---	71	55-125%	8	30%	
Bis(2-ethylhexyl)phthalate	3.58	1.10	2.20	"	"	"	---	90	40-125%	1	30%	
Butyl benzyl phthalate	3.81	1.50	3.00	"	"	"	---	95	45-125%	1	30%	
Diethylphthalate	3.31	1.50	3.00	"	"	"	---	83	40-125%	2	30%	
Dimethylphthalate	3.22	1.50	3.00	"	"	"	---	80	25-125%	6	30%	
Di-n-butylphthalate	3.49	1.50	3.00	"	"	"	---	87	55-125%	3	30%	
Di-n-octyl phthalate	3.55	1.50	3.00	"	"	"	---	89	35-125%	0.7	30%	

Surr: Nitrobenzene-d5 (Surr)
2-Fluorobiphenyl (Surr)
p-Terphenyl-d14 (Surr)

Recovery: 64 % Limits: 35-120 % Dilution: 1x
62 % 30-120 % "
85 % 50-125 % "

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	------	--------------	---------------	------	-------------	-----	-----------	-------

Batch 3120396 - EPA 3015A

Water

Blank (3120396-BLK1) Prepared: 12/16/13 11:00 Analyzed: 12/18/13 17:28

EPA 6020A

Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---

LCS (3120396-BS1)

Prepared: 12/16/13 11:00 Analyzed: 12/18/13 17:25

EPA 6020A

Aluminum	5630	25.0	50.0	ug/L	1	5560	---	101	80-120%	---	---
Antimony	33.3	0.500	1.00	"	"	34.7	---	96	"	---	---
Arsenic	52.1	0.500	1.00	"	"	55.6	---	94	"	---	---
Cadmium	52.8	0.0400	0.200	"	"	"	---	95	"	---	---
Chromium	57.0	0.500	1.00	"	"	"	---	103	"	---	---
Copper	53.0	0.500	1.00	"	"	"	---	95	"	---	---
Lead	55.8	0.100	0.200	"	"	"	---	100	"	---	---
Manganese	59.5	0.500	1.00	"	"	"	---	107	"	---	---
Mercury	1.09	0.0400	0.0800	"	"	1.11	---	98	"	---	---
Nickel	54.0	0.500	1.00	"	"	55.6	---	97	"	---	---
Silver	33.5	0.100	0.200	"	"	34.7	---	97	"	---	---
Zinc	53.6	2.00	4.00	"	"	55.6	---	96	"	---	---

Matrix Spike (3120396-MS2)

Prepared: 12/16/13 11:00 Analyzed: 12/18/13 18:45

QC Source Sample: B19-SP-19-1-20131119 (A3K0592-04)

EPA 6020A

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

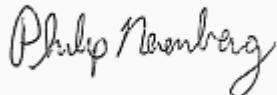
QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3120396 - EPA 3015A												
Water												
Matrix Spike (3120396-MS2)												
QC Source Sample: B19-SP-19-1-20131119 (A3K0592-04)												
Aluminum	9450	25.0	50.0	ug/L	1	5560	3830	101	75-125%	---	---	
Antimony	31.9	0.500	1.00	"	"	34.7	4.31	79	"	---	---	
Arsenic	50.9	0.500	1.00	"	"	55.6	2.34	87	"	---	---	
Cadmium	53.4	0.0400	1.00	"	"	"	1.71	93	"	---	---	
Chromium	77.5	0.500	2.00	"	"	"	25.3	94	"	---	---	
Copper	142	0.500	1.00	"	"	"	94.4	86	"	---	---	
Lead	221	0.100	0.200	"	"	"	173	87	"	---	---	
Manganese	468	0.500	1.00	"	"	"	416	93	"	---	---	
Mercury	1.22	0.0400	0.0800	"	"	1.11	0.217	90	"	---	---	H-01
Nickel	62.0	0.500	1.00	"	"	55.6	12.2	90	"	---	---	
Silver	32.7	0.100	0.200	"	"	34.7	0.178	94	"	---	---	
Zinc	613	2.00	4.00	"	"	55.6	569	79	"	---	---	

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3120464 - EPA 3015A												
Water												
Blank (3120464-BLK1)												
Prepared: 12/18/13 13:34 Analyzed: 12/19/13 15:20												
EPA 6020A												
Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---	---
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	---
Copper	0.967	0.500	1.00	"	"	---	---	---	---	---	---	B-02, J
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	---
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	---
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	---
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	---
Blank (3120464-BLK2)												
Prepared: 12/18/13 13:34 Analyzed: 12/20/13 13:32												
EPA 6020A												
Manganese	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	Q-16
EPA 6020A												
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
LCS (3120464-BS1)												
Prepared: 12/18/13 13:34 Analyzed: 12/19/13 15:23												
EPA 6020A												
Aluminum	5730	25.0	50.0	ug/L	1	5560	---	103	80-120%	---	---	---
Antimony	33.1	0.500	1.00	"	"	34.7	---	95	"	---	---	---
Arsenic	54.8	0.500	1.00	"	"	55.6	---	99	85-115%	---	---	---
Cadmium	53.5	0.0400	0.200	"	"	"	---	96	80-120%	---	---	---
Copper	54.4	0.500	1.00	"	"	"	---	98	"	---	---	B-02
Lead	55.8	0.100	0.200	"	"	"	---	100	"	---	---	---
Mercury	1.07	0.0400	0.0800	"	"	1.11	---	96	"	---	---	---
Nickel	54.3	0.500	1.00	"	"	55.6	---	98	"	---	---	---
Silver	32.8	0.100	0.200	"	"	34.7	---	95	"	---	---	---
Zinc	54.0	2.00	4.00	"	"	55.6	---	97	"	---	---	---
LCS (3120464-BS2)												
Prepared: 12/18/13 13:34 Analyzed: 12/21/13 14:37												

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

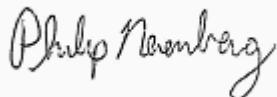
QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3120464 - EPA 3015A												
Water												
LCS (3120464-BS2) Prepared: 12/18/13 13:34 Analyzed: 12/21/13 14:37												
EPA 6020A												
Chromium	58.7	0.500	1.00	ug/L	1	55.6	---	106	80-120%	---	---	Q-16
Manganese	58.7	0.500	1.00	"	"	"	---	106	"	---	---	Q-16

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	------	--------------	---------------	------	-------------	-----	-----------	-------

Batch 3120388 - EPA 3015A - Dissolved

Water

Blank (3120388-BLK1)

Prepared: 12/16/13 10:34 Analyzed: 12/17/13 19:17

EPA 6020A (Diss)

Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---

LCS (3120388-BS1)

Prepared: 12/16/13 10:34 Analyzed: 12/17/13 19:20

EPA 6020A (Diss)

Aluminum	5830	25.0	50.0	ug/L	1	5560	---	105	80-120%	---	---
Antimony	34.1	0.500	1.00	"	"	34.7	---	98	"	---	---
Arsenic	51.8	0.500	1.00	"	"	55.6	---	93	"	---	---
Cadmium	51.8	0.0400	0.200	"	"	"	---	93	"	---	---
Chromium	54.3	0.500	1.00	"	"	"	---	98	"	---	---
Copper	53.7	0.500	1.00	"	"	"	---	97	"	---	---
Lead	56.3	0.100	0.200	"	"	"	---	101	"	---	---
Manganese	53.7	0.500	1.00	"	"	"	---	97	"	---	---
Mercury	1.14	0.0400	0.0800	"	"	1.11	---	103	"	---	Q-23
Nickel	54.6	0.500	1.00	"	"	55.6	---	98	"	---	---
Silver	32.6	0.100	0.200	"	"	34.7	---	94	"	---	---
Zinc	49.9	2.00	4.00	"	"	55.6	---	90	"	---	---

Duplicate (3120388-DUP1)

Prepared: 12/16/13 10:34 Analyzed: 12/17/13 19:40

QC Source Sample: B19-SP-19-1-20131119 (A3K0592-04)

EPA 6020A (Diss)

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3120388 - EPA 3015A - Dissolved												
Water												
Duplicate (3120388-DUP1)												
Prepared: 12/16/13 10:34 Analyzed: 12/17/13 19:40												
QC Source Sample: B19-SP-19-1-20131119 (A3K0592-04)												
Aluminum	76.2	25.0	50.0	ug/L	1	---	76.2	---	---	0.01	20%	
Antimony	1.82	0.500	1.00	"	"	---	1.80	---	---	1	20%	Q-23
Arsenic	0.789	0.500	1.00	"	"	---	0.700	---	---	12	20%	J
Cadmium	ND	0.0400	0.200	"	"	---	0.0444	---	---	***	20%	
Chromium	1.27	0.500	1.00	"	"	---	1.26	---	---	0.9	20%	
Copper	6.12	0.500	1.00	"	"	---	6.22	---	---	2	20%	
Lead	1.62	0.100	0.200	"	"	---	1.67	---	---	3	20%	Q-23
Manganese	12.0	0.500	1.00	"	"	---	12.9	---	---	7	20%	
Mercury	ND	0.0400	0.0800	"	"	---	ND	---	---	---	20%	
Nickel	0.633	0.500	1.00	"	"	---	0.644	---	---	2	20%	J
Silver	ND	0.100	0.200	"	"	---	ND	---	---	---	20%	
Zinc	10.7	2.00	4.00	"	"	---	10.3	---	---	4	20%	
Matrix Spike (3120388-MS1)												
Prepared: 12/16/13 10:34 Analyzed: 12/17/13 19:43												
QC Source Sample: B19-SP-19-1-20131119 (A3K0592-04)												
EPA 6020A (Diss)												
Aluminum	5860	25.0	50.0	ug/L	1	5560	76.2	104	75-125%	---	---	
Antimony	34.2	0.500	1.00	"	"	34.7	1.80	93	"	---	---	Q-23
Arsenic	51.8	0.500	1.00	"	"	55.6	0.700	92	"	---	---	
Cadmium	52.7	0.0400	0.200	"	"	"	0.0444	95	"	---	---	
Chromium	55.6	0.500	1.00	"	"	"	1.26	98	"	---	---	
Copper	58.7	0.500	1.00	"	"	"	6.22	94	"	---	---	
Lead	57.0	0.100	0.200	"	"	"	1.67	100	"	---	---	Q-23
Manganese	68.7	0.500	1.00	"	"	"	12.9	100	"	---	---	
Mercury	1.13	0.0400	0.0800	"	"	1.11	ND	102	"	---	---	Q-23
Nickel	54.5	0.500	1.00	"	"	55.6	0.644	97	"	---	---	
Silver	32.6	0.100	0.200	"	"	34.7	ND	94	"	---	---	
Zinc	59.9	2.00	4.00	"	"	55.6	10.3	89	"	---	---	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
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Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

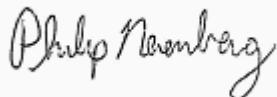
QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110625 - Total Suspended Solids												
Water												
Blank (3110625-BLK1)												
Prepared: 11/21/13 12:05 Analyzed: 11/25/13 16:16												
SM 2540 D												
Total Suspended Solids	ND	2.00	2.00	mg/L	1	---	---	---	---	---	---	---
Reference (3110625-SRM1)												
Prepared: 11/21/13 12:05 Analyzed: 11/25/13 16:16												
SM 2540 D												
Total Suspended Solids	97.0			mg/L	1	100		97	90-110%	---	---	---

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110705 - Method Prep: Aq												
Water												
Blank (3110705-BLK1)												
Prepared: 11/25/13 08:50 Analyzed: 11/27/13 17:01												
SM 5310 B												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	---
LCS (3110705-BS1)												
Prepared: 11/25/13 08:50 Analyzed: 11/27/13 17:26												
SM 5310 B												
Total Organic Carbon	9.57	1.00	1.00	mg/L	1	10.0	---	96	85-115%	---	---	---
Duplicate (3110705-DUP1)												
Prepared: 11/25/13 08:50 Analyzed: 11/27/13 23:59												
QC Source Sample: B22-SP1-20131118 (A3K0592-01)												
SM 5310 B												
Total Organic Carbon	8.99	1.00	1.00	mg/L	1	---	8.48	---	---	6	20%	---
Matrix Spike (3110705-MS1)												
Prepared: 11/25/13 08:50 Analyzed: 11/28/13 05:58												
QC Source Sample: B22-SP1-20131118 (A3K0592-01)												
SM 5310 B												
Total Organic Carbon	17.6	1.01	1.01	mg/L	1	10.0	8.48	91	75-125%	---	---	---

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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Project: Schnitzer-Burgard
Project Number: 8001-20
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Reported:
12/24/13 14:25

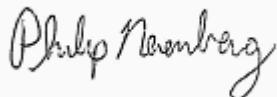
QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110750 - Total Suspended Solids												
Water												
Blank (3110750-BLK1)												
Prepared: 11/26/13 14:41 Analyzed: 11/27/13 10:58												
SM 2540 D												
Total Suspended Solids	ND	5.00	5.00	mg/L	1	---	---	---	---	---	---	---
Reference (3110750-SRM1)												
Prepared: 11/26/13 14:41 Analyzed: 11/27/13 10:58												
SM 2540 D												
Total Suspended Solids	99.0			mg/L	1	100	99	90-110%	---	---	---	---

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

SAMPLE PREPARATION INFORMATION

Diesel and Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Acid Extraction)					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110690</u>							
A3K0592-01	Water	NWTPH-Dx	11/18/13 13:20	11/23/13 12:57	1010mL/5mL	1000mL/5mL	0.99
A3K0592-02	Water	NWTPH-Dx	11/18/13 14:30	11/23/13 12:57	980mL/5mL	1000mL/5mL	1.02
A3K0592-03	Water	NWTPH-Dx	11/18/13 15:10	11/23/13 12:57	1030mL/5mL	1000mL/5mL	0.97
A3K0592-04	Water	NWTPH-Dx	11/19/13 09:45	11/23/13 12:57	1060mL/5mL	1000mL/5mL	0.94

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Prep: EPA 5030B					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110613</u>							
A3K0592-01	Water	NWTPH-Gx (MS)	11/18/13 13:20	11/21/13 10:00	5mL/5mL	5mL/5mL	1.00
A3K0592-02	Water	NWTPH-Gx (MS)	11/18/13 14:30	11/21/13 10:00	5mL/5mL	5mL/5mL	1.00
A3K0592-03	Water	NWTPH-Gx (MS)	11/18/13 15:10	11/21/13 10:00	5mL/5mL	5mL/5mL	1.00
A3K0592-04	Water	NWTPH-Gx (MS)	11/19/13 09:45	11/21/13 10:00	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls -- EPA 8082A

Prep: EPA 3510C (Neutral pH)					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3120081</u>							
A3K0592-01	Water	EPA 8082A	11/18/13 13:20	12/04/13 08:19	1040mL/1mL	1000mL/1mL	0.96
A3K0592-02	Water	EPA 8082A	11/18/13 14:30	12/04/13 08:19	1020mL/1mL	1000mL/1mL	0.98
A3K0592-03	Water	EPA 8082A	11/18/13 15:10	12/04/13 08:19	1030mL/2mL	1000mL/1mL	1.94
A3K0592-04	Water	EPA 8082A	11/19/13 09:45	12/04/13 08:19	1050mL/2mL	1000mL/1mL	1.90

Organochlorine Pesticides by EPA 8081B

Prep: EPA 3510C (Neutral pH)/3640A (GPC)					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110743</u>							
A3K0592-01RE1	Water	EPA 8081B	11/18/13 13:20	11/25/13 14:31	990mL/10mL	1000mL/5mL	2.02
A3K0592-02RE1	Water	EPA 8081B	11/18/13 14:30	11/25/13 14:31	1050mL/10mL	1000mL/5mL	1.90
A3K0592-03RE1	Water	EPA 8081B	11/18/13 15:10	11/25/13 14:31	1030mL/10mL	1000mL/5mL	1.94
A3K0592-04RE1	Water	EPA 8081B	11/19/13 09:45	11/25/13 14:31	1060mL/10mL	1000mL/5mL	1.89

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 12/24/13 14:25

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Prep: EPA 3510C (Acid Extraction)					Sample Initial/Final	Default Initial/Final	RL Prep Factor
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 3110696</u>							
A3K0592-01RE1	Water	EPA 8270D P/P	11/18/13 13:20	11/25/13 07:08	960mL/1mL	1000mL/1mL	1.04
A3K0592-02RE1	Water	EPA 8270D P/P	11/18/13 14:30	11/25/13 07:08	1050mL/1mL	1000mL/1mL	0.95
A3K0592-03RE1	Water	EPA 8270D P/P	11/18/13 15:10	11/25/13 07:08	1010mL/5mL	1000mL/1mL	4.95
A3K0592-04RE1	Water	EPA 8270D P/P	11/19/13 09:45	11/25/13 07:08	1060mL/2mL	1000mL/1mL	1.89

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A					Sample Initial/Final	Default Initial/Final	RL Prep Factor		
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor		
<u>Batch: 3120396</u>									
A3K0592-01	Water	EPA 6020A	11/18/13 13:20	12/16/13 11:00	45mL/50mL	45mL/50mL	1.00		
A3K0592-03	Water	EPA 6020A	11/18/13 15:10	12/16/13 11:00	45mL/50mL	45mL/50mL	1.00		
A3K0592-04	Water	EPA 6020A	11/19/13 09:45	12/16/13 11:00	45mL/50mL	45mL/50mL	1.00		
<u>Batch: 3120464</u>		A3K0592-02	Water	EPA 6020A	11/18/13 14:30	12/18/13 13:34	45mL/50mL	45mL/50mL	1.00

Dissolved Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A - Dissolved					Sample Initial/Final	Default Initial/Final	RL Prep Factor
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 3120388</u>							
A3K0592-01	Water	EPA 6020A (Diss)	11/18/13 13:20	12/16/13 10:34	45mL/50mL	45mL/50mL	1.00
A3K0592-02	Water	EPA 6020A (Diss)	11/18/13 14:30	12/16/13 10:34	45mL/50mL	45mL/50mL	1.00
A3K0592-03	Water	EPA 6020A (Diss)	11/18/13 15:10	12/16/13 10:34	45mL/50mL	45mL/50mL	1.00
A3K0592-04	Water	EPA 6020A (Diss)	11/19/13 09:45	12/16/13 10:34	45mL/50mL	45mL/50mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Ag					Sample Initial/Final	Default Initial/Final	RL Prep Factor
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 3110705</u>							
A3K0592-01	Water	SM 5310 B	11/18/13 13:20	11/25/13 08:50	40mL/40mL	1mL/1mL	1.00
A3K0592-02	Water	SM 5310 B	11/18/13 14:30	11/25/13 08:50	40mL/40mL	1mL/1mL	1.00
A3K0592-03	Water	SM 5310 B	11/18/13 15:10	11/25/13 08:50	40mL/40mL	1mL/1mL	1.00
A3K0592-04	Water	SM 5310 B	11/19/13 09:45	11/25/13 08:50	40mL/40mL	1mL/1mL	1.00

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

SAMPLE PREPARATION INFORMATION

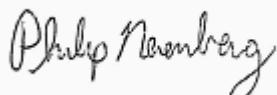
Conventional Chemistry Parameters

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 3110625</u>							
A3K0592-01	Water	SM 2540 D	11/18/13 13:20	11/21/13 12:05	1N/A/1N/A	1N/A/1N/A	NA
A3K0592-02	Water	SM 2540 D	11/18/13 14:30	11/21/13 12:05	1N/A/1N/A	1N/A/1N/A	NA
A3K0592-03	Water	SM 2540 D	11/18/13 15:10	11/21/13 12:05	1N/A/1N/A	1N/A/1N/A	NA
<u>Batch: 3110750</u>							
A3K0592-04	Water	SM 2540 D	11/19/13 09:45	11/26/13 14:41	1N/A/1N/A	1N/A/1N/A	NA

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Project: **Schnitzer-Burgard**
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
12/24/13 14:25

Notes and Definitions

Qualifiers:

- B-02 Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
- C-05 Extract has undergone a GPC (Gel-Permeation Chromotography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
- C-07 Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- H-01 This sample was analyzed outside the recommended holding time.
- J Estimated Result . Result detected below the lowest point of the calibration curve, but above the specified MDL.
- P-10 Result estimated due to the presence of multiple aroclors and/or matrix interference.
- Q-16 Reanalysis of an original Batch QC sample.
- Q-19 Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-23 Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Data is likely biased high.
- R-02 The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- R-04 Reporting levels elevated due to dilution necessary for analysis.
- S-05 Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to $\frac{1}{2}$ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.

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Project: **Schnitzer-Burgard**

Project Number: 8001-20
Project Manager: Ross Rieke

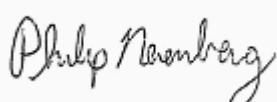
Reported:
12/24/13 14:25

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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Project: Schnitzer-Burgard

Project Number: 8001-20

Project Manager: Ross Rieke

Reported:

12/24/13 14:25

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Philip Norenberg

Philip Nerenberg, Lab Director

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 26, 2013

Philip Nerenberg
Apex Laboratories
12232 SW Garden Place
Tigard, OR 97223

Client Project: A3K0592
ARI Job No.: XP36

Dear Mr. Nerenberg:

Please find enclosed the original Chain of Custody record (COC), sample receipt documentation, and the final data for the samples from the project referenced above.

Sample receipt information and analytical details are addressed in the Case Narrative.

An electronic copy of this report and all supporting raw data will be kept on file at ARI. Should you have any questions or concerns, please feel free to call me at your convenience.

Respectfully,
ANALYTICAL RESOURCES, INC.

A handwritten signature in black ink, appearing to read "Cheronne Oreiro".

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile: XP36

Enclosures

11-21-13 KTP

SUBCONTRACT ORDER

Apex Laboratories

A3K0592

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Analytical Resources, INC
4611 S. 134th Place
Tukwila, WA 98168
Phone :(206) 695-6200
Fax: (206) 695-6201

OF 22, 1 unpres amber reads B22-SWSP-MH, t

Sample Name: B22-SP1-20131118	Water	Sampled: 11/18/13 13:20	(A3K0592-01)
--------------------------------------	-------	--------------------------------	--------------

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub) <i>Containers Supplied:</i> (E)1 L Amber Glass - Non Preserved (F)1 L Amber Glass - Non Preserved	12/05/13 17:00	12/02/13 13:20	Krone--ARI

OF 20

Sample Name: B20-SP-20A-1-20131118	Water	Sampled: 11/18/13 14:30	(A3K0592-02)
---	-------	--------------------------------	--------------

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub) <i>Containers Supplied:</i> (E)1 L Amber Glass - Non Preserved (F)1 L Amber Glass - Non Preserved	12/05/13 17:00	12/02/13 14:30	Krone--ARI

MH location

Sample Name: B18-SP1-20131118	Water	Sampled: 11/18/13 15:10	(A3K0592-03)
--------------------------------------	-------	--------------------------------	--------------

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub) <i>Containers Supplied:</i> (E)1 L Amber Glass - Non Preserved (F)1 L Amber Glass - Non Preserved	12/05/13 17:00	12/02/13 15:10	Krone--ARI

MH location for B19

Sample Name: B19-SP-19-1-20131119	Water	Sampled: 11/19/13 09:45	(A3K0592-04)
--	-------	--------------------------------	--------------

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub) <i>Containers Supplied:</i> (E)1 L Amber Glass - Non Preserved (F)1 L Amber Glass - Non Preserved	12/05/13 17:00	12/03/13 09:45	Krone--ARI

St. J. A.

<i>J. J. P.</i>	11-21-13 15:17	UPS (Shipper)
Released By	Date	Received By
<input type="button" value="UPS (Shipper)"/>		<i>[Signature]</i>
Released By	Date	Received By
<input type="button" value="UPS (Shipper)"/>		<i>[Signature]</i>
Released By	Date	Received By



Cooler Receipt Form

ARI Client: Aper

COC No(s) _____ NA

Assigned ARI Job No. X P36

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time: 1150

5.1

If cooler temperature is out of compliance fill out form 00070F

Cooler Accepted by: TB Date 11-22-13 Time. 1150 Temp Gun ID#: 9087795L

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs). NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI. NA

Was Sample Split by ARI. NA YES Date/Time _____ Equipment. _____ Split by: _____

Samples Logged by: TB Date. 11-22-13 Time: 1221

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By:

Date.

Small Air Bubbles ~2mm • • •	Peabubbles' 2-4 mm • • •	LARGE Air Bubbles > 4 mm • • •	Small → "sm" (< 2 mm) Peabubbles → "pb" (2 to < 4 mm) Large → "lg" (4 to < 6 mm) Headspace → "hs" (> 6 mm)
---	---------------------------------------	---	--



Case Narrative

Client: Apex Laboratories

Project: A3K0592

ARI Job No.: XP36

Sample Receipt

Analytical Resources, Inc. (ARI) accepted four water samples on November 22, 2013 under ARI job XP36. The cooler temperature measured by IR thermometer following ARI SOP was 5.1°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

The samples were analyzed for parameters as requested on the COC.

Butyltins by Krone 1988 SIM

All sample volumes were submitted in one-liter amber glass bottles therefore the extraction required bottle rinse could not be performed.

The LCS and LCSD percent recoveries of Butyltin fell outside advisory control limits low for **LCS-112313**. All other percent recoveries were within control limits. No corrective action was taken.

There were no other irregularities with this analysis.

Sample ID Cross Reference Report



ARI Job No: XP36
Client: Apex Labs
Project Event: A3K0592
Project Name: N/A

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. B22-SP1-20131118	XP36A	13-26074	Water	11/18/13 13:20	11/22/13 11:50
2. B20-SP-20A-1-20131118	XP36B	13-26075	Water	11/18/13 14:30	11/22/13 11:50
3. B18-SP1-20131118	XP36C	13-26076	Water	11/18/13 15:10	11/22/13 11:50
4. B19-SP-19-1-20131119	XP36D	13-26077	Water	11/19/13 09:45	11/22/13 11:50

Printed 11/22/13 Page 1 of 1

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS

Extraction Method: SW3510C

Page 1 of 1

Lab Sample ID: XP36A

LIMS ID: 13-26074

Matrix: Water

Data Release Authorized: *RH*

Reported: 11/26/13

Date Extracted: 11/23/13

Date Analyzed: 11/26/13 09:43

Instrument/Analyst: NT12/VTS

QC Report No: XP36-Apex Labs

Project: A3K0592

Event: NA

Date Sampled: 11/18/13

Date Received: 11/22/13

Sample Amount: 100 mL

Final Extract Volume: 0.50 mL

Dilution Factor: 1.00

Alumina Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result	Q
36643-28-4	Tributyltin Ion	0.043	0.19	< 0.19	U
14488-53-0	Dibutyltin Ion	0.096	0.29	< 0.29	U
78763-54-9	Butyltin Ion	0.11	0.20	< 0.20	U

Reported in µg/L (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	54.6%
Tripentyl Tin Chloride	57.8%

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS

Extraction Method: SW3510C

Page 1 of 1

Lab Sample ID: XP36B

LIMS ID: 13-26075

Matrix: Water

Data Release Authorized: *B*

Reported: 11/26/13

Date Extracted: 11/23/13

Date Analyzed: 11/26/13 09:57

Instrument/Analyst: NT12/VTS

Sample ID: B20-SP-20A-1-20131118

SAMPLE

QC Report No: XP36-Apex Labs

Project: A3K0592

Event: NA

Date Sampled: 11/18/13

Date Received: 11/22/13

Sample Amount: 100 mL

Final Extract Volume: 0.50 mL

Dilution Factor: 1.00

Alumina Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result	Q
36643-28-4	Tributyltin Ion	0.043	0.19	< 0.19	U
14488-53-0	Dibutyltin Ion	0.096	0.29	< 0.29	U
78763-54-9	Butyltin Ion	0.11	0.20	< 0.20	U

Reported in $\mu\text{g/L}$ (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	42.0%
Tripentyl Tin Chloride	47.6%

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS

Extraction Method: SW3510C

Page 1 of 1

Lab Sample ID: XP36C

LIMS ID: 13-26076

Matrix: Water

Data Release Authorized: *BS*

Reported: 11/26/13

Date Extracted: 11/23/13

Date Analyzed: 11/26/13 10:41

Instrument/Analyst: NT12/VTS

Sample ID: B18-SP1-20131118

SAMPLE

QC Report No: XP36-Apex Labs

Project: A3K0592

Event: NA

Date Sampled: 11/18/13

Date Received: 11/22/13

Sample Amount: 100 mL

Final Extract Volume: 0.50 mL

Dilution Factor: 1.00

Alumina Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result	Q
36643-28-4	Tributyltin Ion	0.043	0.19	< 0.19	U
14488-53-0	Dibutyltin Ion	0.096	0.29	< 0.29	U
78763-54-9	Butyltin Ion	0.11	0.20	< 0.20	U

Reported in µg/L (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	50.7%
Tripentyl Tin Chloride	57.4%

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS

Extraction Method: SW3510C

Page 1 of 1

Lab Sample ID: XP36D

LIMS ID: 13-26077

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 11/26/13

Date Extracted: 11/23/13

Date Analyzed: 11/26/13 10:55

Instrument/Analyst: NT12/VTS

Sample ID: B19-SP-19-1-20131119

SAMPLE

QC Report No: XP36-Apex Labs

Project: A3K0592

Event: NA

Date Sampled: 11/19/13

Date Received: 11/22/13

Sample Amount: 100 mL

Final Extract Volume: 0.50 mL

Dilution Factor: 1.00

Alumina Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result	Q
36643-28-4	Tributyltin Ion	0.043	0.19	< 0.19	U
14488-53-0	Dibutyltin Ion	0.096	0.29	< 0.29	U
78763-54-9	Butyltin Ion	0.11	0.20	< 0.20	U

Reported in µg/L (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	60.7%
Tripentyl Tin Chloride	70.8%

TBT SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XP36-Apex Labs
 Project: A3K0592
 Event: NA

Client ID	TPRT	TPNT	TOT OUT
MB-112313	66.0%	76.1%	0
LCS-112313	57.7%	66.2%	0
LCSD-112313	45.8%	51.8%	0
B22-SP1-20131118	54.6%	57.8%	0
B20-SP-20A-1-20131118	42.0%	47.6%	0
B18-SP1-20131118	50.7%	57.4%	0
B19-SP-19-1-20131119	60.7%	70.8%	0

	LCS/MB LIMITS	QC LIMITS
(TPRT) = Tripropyl Tin Chloride	(30-160)	(30-160)
(TPNT) = Tripentyl Tin Chloride	(30-160)	(30-160)

Prep Method: SW3510C
 Analytical Method: TBT (Hexyl) Krone 1988
 Log Number Range: 13-26074 to 13-26077

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS
Page 1 of 1

Lab Sample ID: LCS-112313

LIMS ID: 13-26074

Matrix: Water

Data Release Authorized: *BB*

Reported: 11/26/13

Date Extracted LCS: 11/23/13

Date Analyzed LCS: 11/26/13 09:16

LCSD: 11/26/13 09:29

Instrument/Analyst LCS: NT12/VTS

LCSD: NT12/VTS

QC Report No: XP36-Apex Labs

Project: A3K0592

Date Sampled: NA

Date Received: NA

Sample Amount LCS: 100 mL

LCSD: 100 mL

Final Extract Volume LCS: 0.50 mL

LCSD: 0.50 mL

Dilution Factor LCS: 1.00

LCSD: 1.00

Alumina Cleanup: Yes

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Tributyltin Ion	1.61	2.23	72.2%	1.28	2.23	57.4%	22.8%
Dibutyltin Ion	1.12	1.92	58.3%	0.92	1.92	47.9%	19.6%
Butyltin Ion	0.45	1.56	28.8%	0.29	1.56	18.6%	43.2%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

TBT Surrogate Recovery

	LCS	LCSD
Tripropyl Tin Chloride	57.7%	45.8%
Tripentyl Tin Chloride	66.2%	51.8%

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS
Extraction Method: SW3510C

Page 1 of 1

Lab Sample ID: MB-112313

LIMS ID: 13-26074

Matrix: Water

Data Release Authorized: *BB*

Reported: 11/26/13

Date Extracted: 11/23/13

Date Analyzed: 11/26/13 09:02

Instrument/Analyst: NT12/VTS

Sample ID: MB-112313

METHOD BLANK

QC Report No: XP36-Apex Labs

Project: A3K0592

Event: NA

Date Sampled: NA

Date Received: NA

Sample Amount: 100 mL

Final Extract Volume: 0.50 mL

Dilution Factor: 1.00

Alumina Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result	Q
36643-28-4	Tributyltin Ion	0.043	0.19	< 0.19	U
14488-53-0	Dibutyltin Ion	0.096	0.29	< 0.29	U
78763-54-9	Butyltin Ion	0.11	0.20	< 0.20	U

Reported in µg/L (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	66.0%
Tripentyl Tin Chloride	76.1%



Your Project #: A3K0592
Your C.O.C. #: NA

Attention: Philip Nerenberg

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2013/12/27

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B3K2315**

Received: 2013/11/22, 11:45

Sample Matrix: Water

Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dioxins/Furans in Water (8290A) (1)	1	2013/12/02	2013/12/03	BRL SOP-00406	EPA 8290A mod.
Dioxins/Furans in Water (8290A) (1)	3	2013/12/02	2013/12/04	BRL SOP-00406	EPA 8290A mod.
PCB Congeners in Water (1668A)	4	2013/11/29	2013/12/04	BRL SOP-00408	EPA 1668A mod.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

U = Undetected at the limit of quantitation.

J = Estimated concentration between the EDL & RDL.

B = Blank Contamination.

Q = One or more quality control criteria failed.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ivana Vukovic, Env Project Manager
Email: IVukovic@maxxam.ca
Phone# (905) 817-5700

=====

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Total cover pages: 1

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18						
COC Number		NA		TOXIC EQUIVALENCY		# of		
	Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.2 U	1.2	2.2	1.00	1.20		3444979
1,2,3,7,8-Penta CDD	pg/L	1.5 U	1.5	11	1.00	1.50		3444979
1,2,3,4,7,8-Hexa CDD	pg/L	1.0 U	1.0	11	0.100	0.100		3444979
1,2,3,6,7,8-Hexa CDD	pg/L	1.1 U (1)	1.1	11	0.100	0.110		3444979
1,2,3,7,8,9-Hexa CDD	pg/L	1.2 U (1)	1.2	11	0.100	0.120		3444979
1,2,3,4,6,7,8-Hepta CDD	pg/L	34	1.0	11	0.0100	0.340		3444979
Octa CDD	pg/L	256	1.1	22	0.000300	0.0768		3444979
Total Tetra CDD	pg/L	1.2 U	1.2	2.2				3444979
Total Penta CDD	pg/L	1.5 U	1.5	11				3444979
Total Hexa CDD	pg/L	7.49 J	0.88	11				3444979
Total Hepta CDD	pg/L	64	1.0	11				3444979
2,3,7,8-Tetra CDF **	pg/L	0.99 U	0.99	2.2	0.100	0.0990		3444979
1,2,3,7,8-Penta CDF	pg/L	1.3 U	1.3	11	0.0300	0.0390		3444979
2,3,4,7,8-Penta CDF	pg/L	1.4 U	1.4	11	0.300	0.420		3444979
1,2,3,4,7,8-Hexa CDF	pg/L	1.1 U	1.1	11	0.100	0.110		3444979
1,2,3,6,7,8-Hexa CDF	pg/L	1.02 J	0.89	11	0.100	0.102		3444979
2,3,4,6,7,8-Hexa CDF	pg/L	1.1 U	1.1	11	0.100	0.110		3444979
1,2,3,7,8,9-Hexa CDF	pg/L	1.4 U	1.4	11	0.100	0.140		3444979
1,2,3,4,6,7,8-Hepta CDF	pg/L	19 U (1)	19	11	0.0100	0.190		3444979
1,2,3,4,7,8,9-Hepta CDF	pg/L	1.3 U (1)	1.3	11	0.0100	0.0130		3444979
Octa CDF	pg/L	34	1.4	22	0.000300	0.0102		3444979
Total Tetra CDF	pg/L	0.99 U	0.99	2.2				3444979
Total Penta CDF	pg/L	1.4 U	1.4	11				3444979
Total Hexa CDF	pg/L	18	1.1	11				3444979
Total Hepta CDF	pg/L	26	0.99	11				3444979
TOTAL TOXIC EQUIVALENCY	pg/L				4.68			
Surrogate Recovery (%)	%							
C13-1234678 HeptaCDD	%	125						3444979

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
Report Date: 2013/12/27

Apex Laboratories
Client Project #: A3K0592

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA		TOXIC EQUIVALENCY	# of			
Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

C13-1234678 HeptaCDF **	%	102						3444979
C13-123478 HexaCDF	%	107						3444979
C13-123678 HexaCDD *	%	107						3444979
C13-12378 PentaCDD	%	135						3444979
C13-12378 PentaCDF	%	123						3444979
C13-2378 TetraCDD	%	71						3444979
C13-2378 TetraCDF	%	76						3444979
C13-OCDD	%	123						3444979

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenz-p-Dioxin, ** CDF = Chloro Dibenz-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		UA0788						
Sampling Date		2013/11/18						
COC Number		NA		TOXIC EQUIVALENCY		# of		
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.2 U	1.2	2.2	1.00	1.20		3444979
1,2,3,7,8-Penta CDD	pg/L	1.2 U	1.2	11	1.00	1.20		3444979
1,2,3,4,7,8-Hexa CDD	pg/L	2.9 U (1)	2.9	11	0.100	0.290		3444979
1,2,3,6,7,8-Hexa CDD	pg/L	6.4 J	1.1	11	0.100	0.640		3444979
1,2,3,7,8,9-Hexa CDD	pg/L	5.0 J	1.3	11	0.100	0.500		3444979
1,2,3,4,6,7,8-Hepta CDD	pg/L	137	1.2	11	0.0100	1.37		3444979
Octa CDD	pg/L	1100	1.6	22	0.000300	0.330		3444979
Total Tetra CDD	pg/L	1.2 U	1.2	2.2				3444979
Total Penta CDD	pg/L	1.2 U	1.2	11				3444979
Total Hexa CDD	pg/L	55	1.2	11				3444979
Total Hepta CDD	pg/L	328	1.2	11				3444979
2,3,7,8-Tetra CDF **	pg/L	2.0 J	1.3	2.2	0.100	0.200		3444979
1,2,3,7,8-Penta CDF	pg/L	1.4 U	1.4	11	0.0300	0.0420		3444979
2,3,4,7,8-Penta CDF	pg/L	1.4 U	1.4	11	0.300	0.420		3444979
1,2,3,6,7,8-Hexa CDF	pg/L	2.6 U (1)	2.6	11	0.100	0.260		3444979
1,2,3,6,7,8-Hexa CDF	pg/L	1.61 J	0.74	11	0.100	0.161		3444979
2,3,4,6,7,8-Hexa CDF	pg/L	1.81 J	0.91	11	0.100	0.181		3444979
1,2,3,7,8,9-Hexa CDF	pg/L	1.1 U	1.1	11	0.100	0.110		3444979
1,2,3,4,6,7,8-Hepta CDF	pg/L	28 U (1)	28	11	0.0100	0.280		3444979
1,2,3,4,7,8,9-Hepta CDF	pg/L	1.5 U (1)	1.5	11	0.0100	0.0150		3444979
Octa CDF	pg/L	44	1.4	22	0.000300	0.0132		3444979
Total Tetra CDF	pg/L	4.7	1.3	2.2				3444979
Total Penta CDF	pg/L	12	1.4	11				3444979
Total Hexa CDF	pg/L	42	0.90	11				3444979
Total Hepta CDF	pg/L	43	1.0	11				3444979
TOTAL TOXIC EQUIVALENCY	pg/L					7.21		
Surrogate Recovery (%)								
C13-1234678 HeptaCDD	%	118						3444979

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		UA0788						
Sampling Date		2013/11/18						
		14:30						
COC Number		NA		TOXIC EQUIVALENCY	# of			
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

C13-1234678 HeptaCDF **	%	99						3444979
C13-123478 HexaCDF	%	104						3444979
C13-123678 HexaCDD *	%	104						3444979
C13-12378 PentaCDD	%	130						3444979
C13-12378 PentaCDF	%	118						3444979
C13-2378 TetraCDD	%	80						3444979
C13-2378 TetraCDF	%	80						3444979
C13-OCDD	%	117						3444979

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenz-p-Dioxin, ** CDF = Chloro Dibenz-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18						
COC Number		NA		TOXIC EQUIVALENCY		# of		
	Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.0 U	1.0	2.2	1.00	1.00		3444979
1,2,3,7,8-Penta CDD	pg/L	1.3 U	1.3	11	1.00	1.30		3444979
1,2,3,4,7,8-Hexa CDD	pg/L	3.2 J	1.3	11	0.100	0.320		3444979
1,2,3,6,7,8-Hexa CDD	pg/L	6.90 J	0.92	11	0.100	0.690		3444979
1,2,3,7,8,9-Hexa CDD	pg/L	7.3 J	1.1	11	0.100	0.730		3444979
1,2,3,4,6,7,8-Hepta CDD	pg/L	165	0.92	11	0.0100	1.65		3444979
Octa CDD	pg/L	1290	1.3	22	0.000300	0.387		3444979
Total Tetra CDD	pg/L	1.0 U	1.0	2.2				3444979
Total Penta CDD	pg/L	1.7 J	1.3	11				3444979
Total Hexa CDD	pg/L	44	1.1	11				3444979
Total Hepta CDD	pg/L	347	0.92	11				3444979
2,3,7,8-Tetra CDF **	pg/L	1.3 U (1)	1.3	2.2	0.100	0.130		3444979
1,2,3,7,8-Penta CDF	pg/L	1.6 U	1.6	11	0.0300	0.0480		3444979
2,3,4,7,8-Penta CDF	pg/L	1.7 U	1.7	11	0.300	0.510		3444979
1,2,3,4,7,8-Hexa CDF	pg/L	3.3 J	1.2	11	0.100	0.330		3444979
1,2,3,6,7,8-Hexa CDF	pg/L	1.98 J	0.97	11	0.100	0.198		3444979
2,3,4,6,7,8-Hexa CDF	pg/L	1.5 J	1.2	11	0.100	0.150		3444979
1,2,3,7,8,9-Hexa CDF	pg/L	1.5 U	1.5	11	0.100	0.150		3444979
1,2,3,4,6,7,8-Hepta CDF	pg/L	48 U (1)	48	11	0.0100	0.480		3444979
1,2,3,4,7,8,9-Hepta CDF	pg/L	3.8 J	1.4	11	0.0100	0.0380		3444979
Octa CDF	pg/L	128	1.2	22	0.000300	0.0384		3444979
Total Tetra CDF	pg/L	1.6 U (1)	1.6	2.2				3444979
Total Penta CDF	pg/L	6.7 J	1.6	11				3444979
Total Hexa CDF	pg/L	57	1.2	11				3444979
Total Hepta CDF	pg/L	91	1.2	11				3444979
TOTAL TOXIC EQUIVALENCY	pg/L				8.15			
Surrogate Recovery (%)	%							
C13-1234678 HeptaCDD	%	118						3444979

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

C13-1234678 HeptaCDF **	%	97						3444979
C13-123478 HexaCDF	%	104						3444979
C13-123678 HexaCDD *	%	106						3444979
C13-12378 PentaCDD	%	130						3444979
C13-12378 PentaCDF	%	127						3444979
C13-2378 TetraCDD	%	84						3444979
C13-2378 TetraCDF	%	88						3444979
C13-OCDD	%	114						3444979

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenz-p-Dioxin, ** CDF = Chloro Dibenz-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		UA0790						
Sampling Date		2013/11/18 09:45						
COC Number		NA		TOXIC EQUIVALENCY		# of		
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.3 U	1.3	2.2	1.00	1.30		3444979
1,2,3,7,8-Penta CDD	pg/L	3.6 U (1)	3.6	11	1.00	3.60		3444979
1,2,3,4,7,8-Hexa CDD	pg/L	9.3 J	1.5	11	0.100	0.930		3444979
1,2,3,6,7,8-Hexa CDD	pg/L	25	1.1	11	0.100	2.50		3444979
1,2,3,7,8,9-Hexa CDD	pg/L	23	1.2	11	0.100	2.30		3444979
1,2,3,4,6,7,8-Hepta CDD	pg/L	639	1.1	11	0.0100	6.39		3444979
Octa CDD	pg/L	6830	1.5	22	0.000300	2.05		3444979
Total Tetra CDD	pg/L	2.0 U (1)	2.0	2.2				3444979
Total Penta CDD	pg/L	12 U (1)	12	11				3444979
Total Hexa CDD	pg/L	245	1.2	11				3444979
Total Hepta CDD	pg/L	1620	1.1	11				3444979
2,3,7,8-Tetra CDF **	pg/L	10.8	1.3	2.2	0.100	1.08		3444979
1,2,3,7,8-Penta CDF	pg/L	2.6 J	1.3	11	0.0300	0.0780		3444979
2,3,4,7,8-Penta CDF	pg/L	5.7 U (1)	5.7	11	0.300	1.71		3444979
1,2,3,4,7,8-Hexa CDF	pg/L	13	1.0	11	0.100	1.30		3444979
1,2,3,6,7,8-Hexa CDF	pg/L	5.72 J	0.87	11	0.100	0.572		3444979
2,3,4,6,7,8-Hexa CDF	pg/L	5.7 J	1.1	11	0.100	0.570		3444979
1,2,3,7,8,9-Hexa CDF	pg/L	1.3 U	1.3	11	0.100	0.130		3444979
1,2,3,4,6,7,8-Hepta CDF	pg/L	110 U (1)	110	11	0.0100	1.10		3444979
1,2,3,4,7,8,9-Hepta CDF	pg/L	9.82 J	0.97	11	0.0100	0.0982		3444979
Octa CDF	pg/L	217	1.3	22	0.000300	0.0651		3444979
Total Tetra CDF	pg/L	65.6	1.3	2.2				3444979
Total Penta CDF	pg/L	70	1.3	11				3444979
Total Hexa CDF	pg/L	193	1.1	11				3444979
Total Hepta CDF	pg/L	214	0.81	11				3444979
TOTAL TOXIC EQUIVALENCY	pg/L					25.8		
Surrogate Recovery (%)								
C13-1234678 HeptaCDD	%	121						3444979

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
Report Date: 2013/12/27

Apex Laboratories
Client Project #: A3K0592

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		UA0790						
Sampling Date		2013/11/18 09:45						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

C13-1234678 HeptaCDF **	%	100						3444979
C13-123478 HexaCDF	%	100						3444979
C13-123678 HexaCDD *	%	103						3444979
C13-12378 PentaCDD	%	130						3444979
C13-12378 PentaCDF	%	127						3444979
C13-2378 TetraCDD	%	84						3444979
C13-2378 TetraCDF	%	88						3444979
C13-OCDD	%	123						3444979

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

2-MonoCB-(1)	ng/L	0.035 J	0.019	0.095				3445740
3-MonoCB-(2)	ng/L	0.016 U	0.016	0.095				3445740
4-MonoCB-(3)	ng/L	0.018 U	0.018	0.095				3445740
2,2'-DiCB-(4)	ng/L	0.224	0.018	0.095				3445740
2,3-DiCB-(5)	ng/L	0.015 U	0.015	0.095				3445740
2,3'-DiCB-(6)	ng/L	0.042 J	0.013	0.095				3445740
2,4-DiCB-(7)	ng/L	0.013 U	0.013	0.095				3445740
2,4'-DiCB-(8)	ng/L	0.199	0.012	0.095				3445740
2,5-DiCB-(9)	ng/L	0.013 U	0.013	0.095				3445740
2,6-DiCB-(10)	ng/L	0.015 U	0.015	0.095				3445740
3,3'-DiCB-(11)	ng/L	0.436	0.013	0.095				3445740
DiCB-(12)+(13)	ng/L	0.013 U	0.013	0.19				3445740
3,5-DiCB-(14)	ng/L	0.013 U	0.013	0.095				3445740
4,4'-DiCB-(15)	ng/L	0.118	0.022	0.095				3445740
22'3-TriCB-(16)	ng/L	0.156	0.024	0.095				3445740
22'4-TriCB-(17)	ng/L	0.132	0.021	0.095				3445740
TriCB-(18)+(30)	ng/L	0.27	0.016	0.19				3445740
22'6-TriCB-(19)	ng/L	0.051 J	0.019	0.095				3445740
TriCB-(20) + (28)	ng/L	0.39	0.014	0.19				3445740
TriCB-(21)+(33)	ng/L	0.26	0.014	0.19				3445740
234'-TriCB-(22)	ng/L	0.166	0.014	0.095				3445740
235-TriCB-(23)	ng/L	0.015 U	0.015	0.095				3445740
236-TriCB-(24)	ng/L	0.015 U	0.015	0.095				3445740
23'4-TriCB-(25)	ng/L	0.031 J	0.014	0.095				3445740
TriCB-(26)+(29)	ng/L	0.068 J	0.014	0.19				3445740
23'6-TriCB-(27)	ng/L	0.021 J	0.014	0.095				3445740
24'5-TriCB-(31)	ng/L	0.341	0.013	0.095				3445740
24'6-TriCB-(32)	ng/L	0.081 J	0.013	0.095				3445740
23'5'-TriCB-(34)	ng/L	0.014 U	0.014	0.095				3445740

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

33'4-TriCB-(35)	ng/L	0.013 U	0.013	0.095				3445740
33'5-TriCB-(36)	ng/L	0.012 U	0.012	0.095				3445740
344'-TriCB-(37)	ng/L	0.120	0.017	0.095				3445740
345-TriCB-(38)	ng/L	0.014 U	0.014	0.095				3445740
34'5-TriCB-(39)	ng/L	0.013 U	0.013	0.095				3445740
TetraCB-(40)+(41)+(71)	ng/L	0.163 J	0.020	0.29				3445740
22'34'-TetraCB-(42)	ng/L	0.079 J	0.024	0.095				3445740
22'35-TetraCB-(43)	ng/L	0.033 U	0.033	0.095				3445740
TetraCB-(44)+(47)+(65)	ng/L	0.245 J	0.020	0.29				3445740
TetraCB-(45)+(51)	ng/L	0.050 J	0.020	0.19				3445740
22'36'-TetraCB-(46)	ng/L	0.025 U	0.025	0.095				3445740
22'45-TetraCB-(48)	ng/L	0.055 J	0.020	0.095				3445740
TetraCB-(49)+TetraCB-(69)	ng/L	0.128 J	0.018	0.19				3445740
TetraCB-(50)+(53)	ng/L	0.032 J	0.020	0.19				3445740
22'55'-TetraCB-(52)	ng/L	0.223	0.018	0.095				3445740
22'66'-TetraCB-(54)	ng/L	0.0094 U	0.0094	0.095				3445740
233'4-TetraCB-(55)	ng/L	0.015 U	0.015	0.095				3445740
233'4'-Tetra CB(56)	ng/L	0.096	0.016	0.095				3445740
233'5-TetraCB-(57)	ng/L	0.014 U	0.014	0.095				3445740
233'5'-TetraCB-(58)	ng/L	0.014 U	0.014	0.095				3445740
TetraCB-(59)+(62)+(75)	ng/L	0.025 J	0.016	0.29				3445740
2344'-TetraCB -(60)	ng/L	0.053 J	0.015	0.095				3445740
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.321 J	0.015	0.38				3445740
234'5-TetraCB-(63)	ng/L	0.013 U	0.013	0.095				3445740
234'6-TetraCB-(64)	ng/L	0.129	0.017	0.095				3445740
23'44'-TetraCB-(66)	ng/L	0.142	0.014	0.095				3445740
23'45-TetraCB-(67)	ng/L	0.014 U	0.014	0.095				3445740
23'45'-TetraCB-(68)	ng/L	0.013 U	0.013	0.095				3445740
23'55'-TetraCB-(72)	ng/L	0.014 U	0.014	0.095				3445740

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

23'5'6-TetraCB-(73)	ng/L	0.014 U	0.014	0.095				3445740
33'44'-TetraCB-(77)	ng/L	0.024 J	0.017	0.095	0.000100	0.00000240		3445740
33'45-TetraCB-(78)	ng/L	0.015 U	0.015	0.095				3445740
33'45-TetraCB(79)	ng/L	0.013 U	0.013	0.095				3445740
33'55'-TetraCB-(80)	ng/L	0.013 U	0.013	0.095				3445740
344'5-TetraCB-(81)	ng/L	0.018 U	0.018	0.095	0.000300	0.00000540		3445740
22'33'4-PentaCB-(82)	ng/L	0.037 J	0.021	0.095				3445740
PentaCB-(83)+(99)	ng/L	0.108 J	0.019	0.19				3445740
22'33'6-PentaCB-(84)	ng/L	0.061 U (1)	0.061	0.095				3445740
PentaCB-(85)+(116)+(117)	ng/L	0.036 J	0.015	0.29				3445740
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.166 J	0.016	0.57				3445740
PentaCB-(88)+(91)	ng/L	0.030 J	0.018	0.19				3445740
22'346'-PentaCB-(89)	ng/L	0.020 U	0.020	0.095				3445740
PentaCB-(90)+(101)+(113)	ng/L	0.203 J	0.016	0.29				3445740
22'355'-PentaCB-(92)	ng/L	0.038 J	0.019	0.095				3445740
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.019 U	0.019	0.38				3445740
22'356'-PentaCB-(94)	ng/L	0.020 U	0.020	0.095				3445740
22'35'6-PentaCB-(95)	ng/L	0.164	0.018	0.095				3445740
22'366'-PentaCB-(96)	ng/L	0.010 U	0.010	0.095				3445740
22'45'6-PentaCB-(103)	ng/L	0.017 U	0.017	0.095				3445740
22'466'-PentaCB-(104)	ng/L	0.0087 U	0.0087	0.095				3445740
233'44'-PentaCB-(105)	ng/L	0.119	0.018	0.095	0.0000300	0.00000357		3445740
233'45-PentaCB-(106)	ng/L	0.016 U	0.016	0.095				3445740
233'4'5-PentaCB-(107)	ng/L	0.015 U	0.015	0.095				3445740
PentaCB-(108)+(124)	ng/L	0.015 U	0.015	0.19				3445740
PentaCB-(110)+(115)	ng/L	0.34	0.016	0.19				3445740
233'55'-PentaCB-(111)	ng/L	0.013 U	0.013	0.095				3445740
233'56-PentaCB-(112)	ng/L	0.014 U	0.014	0.095				3445740

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

2344'5-PentaCB-(114)	ng/L	0.018 U	0.018	0.095	0.0000300	0.000000540		3445740
23'44'5-PentaCB-(118)	ng/L	0.244	0.018	0.095	0.0000300	0.00000732		3445740
23'455'-PentaCB-(120)	ng/L	0.013 U	0.013	0.095				3445740
23'45'6-PentaCB-(121)	ng/L	0.014 U	0.014	0.095				3445740
233'4'5'-PentaCB-(122)	ng/L	0.017 U	0.017	0.095				3445740
23'44'5'-PentaCB-(123)	ng/L	0.019 U	0.019	0.095	0.0000300	0.000000570		3445740
33'44'5'-PentaCB-(126)	ng/L	0.018 U	0.018	0.095	0.100	0.00180		3445740
33'455'-PentaCB-(127)	ng/L	0.016 U	0.016	0.095				3445740
HexaCB-(128)+(166)	ng/L	0.055 U (1)	0.055	0.19				3445740
HexaCB-(129)+(138)+(163)	ng/L	0.40	0.030	0.29				3445740
22'33'45'-HexaCB-(130)	ng/L	0.034 U	0.034	0.095				3445740
22'33'46-HexaCB-(131)	ng/L	0.039 U	0.039	0.095				3445740
22'33'46'-HexaCB-(132)	ng/L	0.115	0.033	0.095				3445740
22'33'55'-HexaCB-(133)	ng/L	0.032 U	0.032	0.095				3445740
HexaCB-(134)+(143)	ng/L	0.035 U	0.035	0.19				3445740
HexaCB-(135)+(151)	ng/L	0.075 J	0.030	0.19				3445740
22'33'66'-HexaCB-(136)	ng/L	0.031 J	0.023	0.095				3445740
22'344'5-HexaCB-(137)	ng/L	0.034 U	0.034	0.095				3445740
HexaCB-(139)+(140)	ng/L	0.029 U	0.029	0.19				3445740
22'3455'-HexaCB-(141)	ng/L	0.060 J	0.031	0.095				3445740
22'3456-HexaCB-(142)	ng/L	0.034 U	0.034	0.095				3445740
22'345'6-HexaCB-(144)	ng/L	0.030 U	0.030	0.095				3445740
22'3466'-HexaCB-(145)	ng/L	0.023 U	0.023	0.095				3445740
22'34'55'-HexaCB-(146)	ng/L	0.037 J	0.029	0.095				3445740
HexaCB-(147)+(149)	ng/L	0.20	0.028	0.19				3445740
22'34'56'-HexaCB-(148)	ng/L	0.030 U	0.030	0.095				3445740
22'34'66'-HexaCB-(150)	ng/L	0.021 U	0.021	0.095				3445740
22'3566'-HexaCB-(152)	ng/L	0.023 U	0.023	0.095				3445740

RDL = Reportable Detection Limit

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Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

HexaCB-(153)+(168)	ng/L	0.22	0.024	0.19				3445740
22'44'56'-HexaCB-(154)	ng/L	0.027 U	0.027	0.095				3445740
22'44'66'-HexaCB-(155)	ng/L	0.023 U	0.023	0.095				3445740
HexaCB-(156)+(157)	ng/L	0.045 J	0.019	0.19	0.0000300	0.00000135		3445740
233'44'6-HexaCB-(158)	ng/L	0.036 U (1)	0.036	0.095				3445740
233'455'-HexaCB-(159)	ng/L	0.018 U	0.018	0.095				3445740
233'456-HexaCB-(160)	ng/L	0.023 U	0.023	0.095				3445740
233'45'6-HexaCB-(161)	ng/L	0.023 U	0.023	0.095				3445740
233'4'55'-HexaCB-(162)	ng/L	0.018 U	0.018	0.095				3445740
233'4'5'6-HexaCB-(164)	ng/L	0.024 J	0.022	0.095				3445740
233'55'6-HexaCB-(165)	ng/L	0.025 U	0.025	0.095				3445740
23'44'55'-HexaCB-(167)	ng/L	0.020 U	0.020	0.095	0.0000300	0.000000600		3445740
33'44'55'-HexaCB-(169)	ng/L	0.021 U	0.021	0.095	0.0300	0.000630		3445740
22'33'44'5-HeptaCB-(170)	ng/L	0.075 J	0.023	0.095				3445740
HeptaCB-(171)+(173)	ng/L	0.028 U	0.028	0.19				3445740
22'33'455'-HeptaCB-(172)	ng/L	0.028 U	0.028	0.095				3445740
22'33'456'-HeptaCB-(174)	ng/L	0.061 J	0.026	0.095				3445740
22'33'45'6-HeptaCB-(175)	ng/L	0.024 U	0.024	0.095				3445740
22'33'466'-HeptaCB-(176)	ng/L	0.018 U	0.018	0.095				3445740
22'33'45'6-HeptaCB-(177)	ng/L	0.033 J	0.028	0.095				3445740
22'33'55'6-HeptaCB-(178)	ng/L	0.025 U	0.025	0.095				3445740
22'33'566'-HeptaCB-(179)	ng/L	0.018 U	0.018	0.095				3445740
HeptaCB-(180)+(193)	ng/L	0.160 J	0.022	0.19				3445740
22'344'56-HeptaCB-(181)	ng/L	0.026 U	0.026	0.095				3445740
22'344'56'-HeptaCB-(182)	ng/L	0.025 U	0.025	0.095				3445740
22'344'5'6-HeptaCB-(183)	ng/L	0.035 J	0.022	0.095				3445740
22'344'66'-HeptaCB-(184)	ng/L	0.017 U	0.017	0.095				3445740
22'3455'6-HeptaCB-(185)	ng/L	0.030 U	0.030	0.095				3445740

RDL = Reportable Detection Limit

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QC Batch = Quality Control Batch

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

22'34566'-HeptaCB-(186)	ng/L	0.018 U	0.018	0.095				3445740
22'34'55'6-HeptaCB-(187)	ng/L	0.073 J	0.023	0.095				3445740
22'34'566'-HeptaCB-(188)	ng/L	0.021 U	0.021	0.095				3445740
233'44'55'-HeptaCB-(189)	ng/L	0.013 U	0.013	0.095	0.0000300	0.000000390		3445740
233'44'56-HeptaCB-(190)	ng/L	0.022 U	0.022	0.095				3445740
233'44'5'6-HeptaCB-(191)	ng/L	0.020 U	0.020	0.095				3445740
233'455'6-HeptaCB-(192)	ng/L	0.021 U	0.021	0.095				3445740
22'33'44'55'-OctaCB-(194)	ng/L	0.039 J	0.023	0.095				3445740
22'33'44'56-OctaCB-(195)	ng/L	0.023 U	0.023	0.095				3445740
22'33'44'56'-OctaCB-(196)	ng/L	0.020 U	0.020	0.095				3445740
22'33'44'66'OctaCB-(197)	ng/L	0.014 U	0.014	0.095				3445740
OctaCB-(198)+(199)	ng/L	0.048 J	0.019	0.19				3445740
22'33'4566'-OctaCB-(200)	ng/L	0.013 U	0.013	0.095				3445740
22'33'45'66'-OctaCB-(201)	ng/L	0.013 U	0.013	0.095				3445740
22'33'55'66'-OctaCB-(202)	ng/L	0.018 U	0.018	0.095				3445740
22'344'55'6-OctaCB-(203)	ng/L	0.026 J	0.018	0.095				3445740
22'344'566'-OctaCB-(204)	ng/L	0.014 U	0.014	0.095				3445740
233'44'55'6-OctaCB-(205)	ng/L	0.019 U	0.019	0.095				3445740
22'33'44'55'6-NonaCB-(206)	ng/L	0.026 U	0.026	0.095				3445740
22'33'44'566'-NonaCB-(207)	ng/L	0.020 U	0.020	0.095				3445740
22'33'455'66'-NonaCB-(208)	ng/L	0.024 U	0.024	0.095				3445740
DecaCB-(209)	ng/L	0.016 U	0.016	0.095				3445740
Monochlorobiphenyl	ng/L	0.035	0.019	N/A			1	3445740
Dichlorobiphenyl	ng/L	1.02	0.022	N/A			5	3445740
Trichlorobiphenyl	ng/L	2.09	0.024	N/A			13	3445740
Tetrachlorobiphenyl	ng/L	1.76	0.033	N/A			15	3445740
Pentachlorobiphenyl	ng/L	1.49	0.023	N/A			11	3445740
Hexachlorobiphenyl	ng/L	1.20	0.039	N/A			10	3445740
Heptachlorobiphenyl	ng/L	0.436	0.030	N/A			6	3445740

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Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Octachlorobiphenyl	ng/L	0.113	0.023	N/A			3	3445740
Nonachlorobiphenyl	ng/L	0.026 U	0.026	N/A			0	3445740
Decachlorobiphenyl	ng/L	0.016 U	0.016	N/A			0	3445740
Total PCB	ng/L	8.15	N/A	N/A				3445740
TOTAL TOXIC EQUIVALENCY	ng/L					0.00245		
Surrogate Recovery (%)								
C13-2,44'-TriCB-(28)	%	92						3445740
C13-22'33'44'55'6-NonaCB-(206)	%	94						3445740
C13-22'33'44'5-HeptaCB-(170)	%	101						3445740
C13-22'33'455'66'-NonaCB-(208)	%	96						3445740
C13-22'33'55'66'-OctaCB-(202)	%	94						3445740
C13-22'33'55'6-HeptaCB-(178)	%	105						3445740
C13-22'344'55'-HeptaCB-(180)	%	102						3445740
C13-22'34'566'-HeptaCB-(188)	%	85						3445740
C13-22'44'66'-HexaCB-(155)	%	80						3445740
C13-22'466'-PentaCB-(104)	%	71						3445740
C13-22'66'-TetraCB-(54)	%	66						3445740
C13-22'6-TriCB-(19)	%	52						3445740
C13-22'-DiCB-(4)	%	33						3445740
C13-233'44'55'6-OctaCB-(205)	%	100						3445740
C13-233'44'55'-HeptaCB-(189)	%	108						3445740
C13-233'44'-PentaCB-(105)	%	99						3445740
C13-233'55'-PentaCB-(111)	%	97						3445740
C13-23'44'55'-HexaCB-(167)	%	99						3445740
C13-2344'5-PentaCB-(114)	%	97						3445740
C13-23'44'5-PentaCB-(118)	%	98						3445740
C13-2'344'5-PentaCB-(123)	%	98						3445740
C13-2-MonoCB-(1)	%	26						3445740
C13-33'44'55'-HexaCB-(169)	%	52						3445740

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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
Report Date: 2013/12/27

Apex Laboratories
Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0787						
Sampling Date		2013/11/18 13:20						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B22-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

C13-33'44'5-PentaCB-(126)	%	92						3445740
C13-33'44'-TetraCB-(77)	%	113						3445740
C13-344'5-TetraCB-(81)	%	112						3445740
C13-344'-TriCB-(37)	%	98						3445740
C13-44'-DiCB-(15)	%	79						3445740
C13-4-MonoCB-(3)	%	36						3445740
C13-DecaCB-(209)	%	84						3445740
C13-HexaCB-(156)+(157)	%	98						3445740

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Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0788						
Sampling Date		2013/11/18 14:30						
COC Number		NA		TOXIC EQUIVALENCY		# of		
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.033 U (1)	0.033	0.098				3445740
3-MonoCB-(2)	ng/L	0.016 U	0.016	0.098				3445740
4-MonoCB-(3)	ng/L	0.024 J	0.018	0.098				3445740
2,2'-DiCB-(4)	ng/L	0.330	0.018	0.098				3445740
2,3-DiCB-(5)	ng/L	0.017 U	0.017	0.098				3445740
2,3'-DiCB-(6)	ng/L	0.111	0.015	0.098				3445740
2,4-DiCB-(7)	ng/L	0.015 U	0.015	0.098				3445740
2,4'-DiCB-(8)	ng/L	0.541	0.014	0.098				3445740
2,5-DiCB-(9)	ng/L	0.028 J	0.015	0.098				3445740
2,6-DiCB-(10)	ng/L	0.015 U	0.015	0.098				3445740
3,3'-DiCB-(11)	ng/L	0.503	0.015	0.098				3445740
DiCB-(12)+(13)	ng/L	0.063 U (1)	0.063	0.20				3445740
3,5-DiCB-(14)	ng/L	0.015 U	0.015	0.098				3445740
4,4'-DiCB-(15)	ng/L	0.658	0.025	0.098				3445740
2,2'3-TriCB-(16)	ng/L	0.576	0.033	0.098				3445740
2,2'4-TriCB-(17)	ng/L	0.521	0.029	0.098				3445740
TriCB-(18)+(30)	ng/L	1.05	0.023	0.20				3445740
2,2'6-TriCB-(19)	ng/L	0.137	0.026	0.098				3445740
TriCB-(20) + (28)	ng/L	2.50	0.019	0.20				3445740
TriCB-(21)+(33)	ng/L	1.42	0.019	0.20				3445740
234'-TriCB-(22)	ng/L	0.969	0.020	0.098				3445740
235-TriCB-(23)	ng/L	0.020 U	0.020	0.098				3445740
236-TriCB-(24)	ng/L	0.029 J	0.021	0.098				3445740
23'4-TriCB-(25)	ng/L	0.180	0.020	0.098				3445740
TriCB-(26)+(29)	ng/L	0.36	0.019	0.20				3445740
23'6-TriCB-(27)	ng/L	0.096 J	0.020	0.098				3445740
24'5-TriCB-(31)	ng/L	1.92	0.018	0.098				3445740
24'6-TriCB-(32)	ng/L	0.383	0.018	0.098				3445740

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0788						
Sampling Date		2013/11/18 14:30						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

23'5'-TriCB-(34)	ng/L	0.020 U	0.020	0.098				3445740
33'4-TriCB-(35)	ng/L	0.047 J	0.019	0.098				3445740
33'5-TriCB-(36)	ng/L	0.016 U	0.016	0.098				3445740
344'-TriCB-(37)	ng/L	0.936	0.023	0.098				3445740
345-TriCB-(38)	ng/L	0.019 U	0.019	0.098				3445740
34'5-TriCB-(39)	ng/L	0.017 U	0.017	0.098				3445740
TetraCB-(40)+(41)+(71)	ng/L	1.31	0.023	0.29				3445740
22'34'-TetraCB-(42)	ng/L	0.667	0.028	0.098				3445740
22'35-TetraCB-(43)	ng/L	0.095 J	0.038	0.098				3445740
TetraCB-(44)+(47)+(65)	ng/L	2.24	0.023	0.29				3445740
TetraCB-(45)+(51)	ng/L	0.33	0.023	0.20				3445740
22'36'-TetraCB-(46)	ng/L	0.134	0.029	0.098				3445740
22'45-TetraCB-(48)	ng/L	0.394	0.023	0.098				3445740
TetraCB-(49)+TetraCB-(69)	ng/L	1.12	0.021	0.20				3445740
TetraCB-(50)+(53)	ng/L	0.23	0.023	0.20				3445740
22'55'-TetraCB-(52)	ng/L	2.17	0.021	0.098				3445740
22'66'-TetraCB-(54)	ng/L	0.016 U	0.016	0.098				3445740
233'4-TetraCB-(55)	ng/L	0.018 U (1)	0.018	0.098				3445740
233'4'-Tetra CB(56)	ng/L	0.831	0.020	0.098				3445740
233'5-TetraCB-(57)	ng/L	0.018 U	0.018	0.098				3445740
233'5'-TetraCB-(58)	ng/L	0.018 U	0.018	0.098				3445740
TetraCB-(59)+(62)+(75)	ng/L	0.198 J	0.018	0.29				3445740
2344'-TetraCB -(60)	ng/L	0.352	0.018	0.098				3445740
TetraCB-(61)+(70)+(74)+(76)	ng/L	3.01	0.018	0.39				3445740
234'5-TetraCB-(63)	ng/L	0.048 J	0.017	0.098				3445740
234'6-TetraCB-(64)	ng/L	1.06	0.020	0.098				3445740
23'44'-TetraCB-(66)	ng/L	1.51	0.017	0.098				3445740
23'45-TetraCB-(67)	ng/L	0.053 J	0.017	0.098				3445740

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Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0788							
Sampling Date		2013/11/18							
COC Number		NA		TOXIC EQUIVALENCY			# of		
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
23'45'-TetraCB-(68)	ng/L	0.016 U	0.016	0.098					3445740
23'55'-TetraCB-(72)	ng/L	0.017 U	0.017	0.098					3445740
23'5'6-TetraCB-(73)	ng/L	0.016 U	0.016	0.098					3445740
33'44'-TetraCB-(77)	ng/L	0.244	0.021	0.098	0.000100	0.0000244			3445740
33'45'-TetraCB-(78)	ng/L	0.018 U	0.018	0.098					3445740
33'45'-TetraCB(79)	ng/L	0.030 J	0.016	0.098					3445740
33'55'-TetraCB-(80)	ng/L	0.016 U	0.016	0.098					3445740
344'5-TetraCB-(81)	ng/L	0.022 U	0.022	0.098	0.000300	0.00000660			3445740
22'33'4-PentaCB-(82)	ng/L	0.507	0.023	0.098					3445740
PentaCB-(83)+(99)	ng/L	1.66	0.020	0.20					3445740
22'33'6-PentaCB-(84)	ng/L	0.897	0.024	0.098					3445740
PentaCB-(85)+(116)+(117)	ng/L	0.52	0.016	0.29					3445740
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	2.62	0.017	0.59					3445740
PentaCB-(88)+(91)	ng/L	0.39	0.020	0.20					3445740
22'346'-PentaCB-(89)	ng/L	0.036 J	0.021	0.098					3445740
PentaCB-(90)+(101)+(113)	ng/L	3.33	0.017	0.29					3445740
22'355'-PentaCB-(92)	ng/L	0.554	0.020	0.098					3445740
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.115 J	0.021	0.39					3445740
22'356'-PentaCB-(94)	ng/L	0.021 U	0.021	0.098					3445740
22'356-PentaCB-(95)	ng/L	2.33	0.019	0.098					3445740
22'366'-PentaCB-(96)	ng/L	0.019 U	0.019	0.098					3445740
22'45'6-PentaCB-(103)	ng/L	0.018 U	0.018	0.098					3445740
22'466'-PentaCB-(104)	ng/L	0.016 U	0.016	0.098					3445740
233'44'-PentaCB-(105)	ng/L	1.76	0.023	0.098	0.0000300	0.0000528			3445740
233'45-PentaCB-(106)	ng/L	0.020 U	0.020	0.098					3445740
233'4'5-PentaCB-(107)	ng/L	0.208	0.018	0.098					3445740
PentaCB-(108)+(124)	ng/L	0.144 J	0.019	0.20					3445740
PentaCB-(110)+(115)	ng/L	5.75	0.017	0.20					3445740
233'55'-PentaCB-(111)	ng/L	0.014 U	0.014	0.098					3445740

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0788							
Sampling Date		2013/11/18							
COC Number		NA		TOXIC EQUIVALENCY			# of		
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
233'56-PentaCB-(112)	ng/L	0.015 U	0.015	0.098					3445740
2344'5-PentaCB-(114)	ng/L	0.074 J	0.022	0.098	0.0000300	0.00000222			3445740
23'44'5-PentaCB-(118)	ng/L	3.98	0.022	0.098	0.0000300	0.000119			3445740
23'455'-PentaCB-(120)	ng/L	0.014 U	0.014	0.098					3445740
23'45'6-PentaCB-(121)	ng/L	0.014 U	0.014	0.098					3445740
233'4'5'-PentaCB-(122)	ng/L	0.054 J	0.022	0.098					3445740
23'44'5'-PentaCB-(123)	ng/L	0.071 J	0.024	0.098	0.0000300	0.00000213			3445740
33'44'5-PentaCB-(126)	ng/L	0.025 J	0.022	0.098	0.100	0.00250			3445740
33'455'-PentaCB-(127)	ng/L	0.020 U	0.020	0.098					3445740
HexaCB-(128)+(166)	ng/L	0.97	0.016	0.20					3445740
HexaCB-(129)+(138)+(163)	ng/L	6.63	0.019	0.29					3445740
22'33'45-HexaCB-(130)	ng/L	0.325	0.021	0.098					3445740
22'33'46-HexaCB-(131)	ng/L	0.081 J	0.024	0.098					3445740
22'33'46'-HexaCB-(132)	ng/L	1.82	0.021	0.098					3445740
22'33'55'-HexaCB-(133)	ng/L	0.054 J	0.020	0.098					3445740
HexaCB-(134)+(143)	ng/L	0.26	0.022	0.20					3445740
HexaCB-(135)+(151)	ng/L	1.14	0.025	0.20					3445740
22'33'66'-HexaCB-(136)	ng/L	0.433	0.019	0.098					3445740
22'344'5-HexaCB-(137)	ng/L	0.307	0.021	0.098					3445740
HexaCB-(139)+(140)	ng/L	0.083 J	0.018	0.20					3445740
22'3455'-HexaCB-(141)	ng/L	0.965	0.019	0.098					3445740
22'3456-HexaCB-(142)	ng/L	0.021 U	0.021	0.098					3445740
22'3456-HexaCB-(144)	ng/L	0.191	0.025	0.098					3445740
22'3466'-HexaCB-(145)	ng/L	0.020 U	0.020	0.098					3445740
22'34'55'-HexaCB-(146)	ng/L	0.598	0.018	0.098					3445740
HexaCB-(147)+(149)	ng/L	3.26	0.017	0.20					3445740
22'34'56'-HexaCB-(148)	ng/L	0.025 U	0.025	0.098					3445740
22'34'66'-HexaCB-(150)	ng/L	0.018 U	0.018	0.098					3445740
22'3566'-HexaCB-(152)	ng/L	0.019 U	0.019	0.098					3445740

RDL = Reportable Detection Limit

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QC Batch = Quality Control Batch

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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0788						
Sampling Date		2013/11/18 14:30						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

HexaCB-(153)+(168)	ng/L	3.77	0.015	0.20				3445740
22'44'56'-HexaCB-(154)	ng/L	0.029 J	0.022	0.098				3445740
22'44'66'-HexaCB-(155)	ng/L	0.020 U	0.020	0.098				3445740
HexaCB-(156)+(157)	ng/L	0.68	0.021	0.20	0.0000300	0.0000204		3445740
233'44'6-HexaCB-(158)	ng/L	0.604	0.014	0.098				3445740
233'455'-HexaCB-(159)	ng/L	0.035 J	0.020	0.098				3445740
233'456-HexaCB-(160)	ng/L	0.015 U	0.015	0.098				3445740
233'45'6-HexaCB-(161)	ng/L	0.014 U	0.014	0.098				3445740
233'4'55'-HexaCB-(162)	ng/L	0.024 J	0.020	0.098				3445740
233'4'5'6-HexaCB-(164)	ng/L	0.346	0.014	0.098				3445740
233'55'6-HexaCB-(165)	ng/L	0.015 U	0.015	0.098				3445740
23'44'55'-HexaCB-(167)	ng/L	0.233	0.022	0.098	0.0000300	0.00000699		3445740
33'44'55'-HexaCB-(169)	ng/L	0.023 U	0.023	0.098	0.0300	0.000690		3445740
22'33'44'5-HeptaCB-(170)	ng/L	0.979	0.018	0.098				3445740
HeptaCB-(171)+(173)	ng/L	0.28	0.021	0.20				3445740
22'33'455'-HeptaCB-(172)	ng/L	0.181	0.022	0.098				3445740
22'33'456'-HeptaCB-(174)	ng/L	0.934	0.020	0.098				3445740
22'33'45'6-HeptaCB-(175)	ng/L	0.035 J	0.018	0.098				3445740
22'33'466'-HeptaCB-(176)	ng/L	0.102	0.014	0.098				3445740
22'33'45'6-HeptaCB-(177)	ng/L	0.522	0.022	0.098				3445740
22'33'55'6-HeptaCB-(178)	ng/L	0.180	0.019	0.098				3445740
22'33'566'-HeptaCB-(179)	ng/L	0.318	0.014	0.098				3445740
HeptaCB-(180)+(193)	ng/L	2.48	0.017	0.20				3445740
22'344'56-HeptaCB-(181)	ng/L	0.020 U	0.020	0.098				3445740
22'344'56'-HeptaCB-(182)	ng/L	0.019 U	0.019	0.098				3445740
22'344'5'6-HeptaCB-(183)	ng/L	0.495	0.017	0.098				3445740
22'344'66'-HeptaCB-(184)	ng/L	0.013 U	0.013	0.098				3445740
22'3455'6-HeptaCB-(185)	ng/L	0.083 J	0.023	0.098				3445740
22'34566'-HeptaCB-(186)	ng/L	0.014 U	0.014	0.098				3445740

RDL = Reportable Detection Limit

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QC Batch = Quality Control Batch

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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0788						
Sampling Date		2013/11/18 14:30						
COC Number		NA		TOXIC EQUIVALENCY		# of		
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'34'55'6-HeptaCB-(187)	ng/L	1.13	0.017	0.098				3445740
22'34'56'6-HeptaCB-(188)	ng/L	0.016 U	0.016	0.098				3445740
233'44'55'-HeptaCB-(189)	ng/L	0.042 U (1)	0.042	0.098	0.0000300	0.00000126		3445740
233'44'56-HeptaCB-(190)	ng/L	0.209	0.017	0.098				3445740
233'44'56-HeptaCB-(191)	ng/L	0.039 J	0.016	0.098				3445740
233'455'6-HeptaCB-(192)	ng/L	0.017 U	0.017	0.098				3445740
22'33'44'55'-OctaCB-(194)	ng/L	0.630	0.021	0.098				3445740
22'33'44'56-OctaCB-(195)	ng/L	0.184	0.022	0.098				3445740
22'33'44'56-OctaCB-(196)	ng/L	0.327	0.024	0.098				3445740
22'33'44'66'OctaCB-(197)	ng/L	0.018 U	0.018	0.098				3445740
OctaCB-(198)+(199)	ng/L	0.80	0.024	0.20				3445740
22'33'4566'-OctaCB-(200)	ng/L	0.072 J	0.016	0.098				3445740
22'33'45'66'-OctaCB-(201)	ng/L	0.074 U (1)	0.074	0.098				3445740
22'33'55'66'-OctaCB-(202)	ng/L	0.180	0.022	0.098				3445740
22'344'55'6-OctaCB-(203)	ng/L	0.500	0.023	0.098				3445740
22'344'566'-OctaCB-(204)	ng/L	0.017 U	0.017	0.098				3445740
233'44'55'6-OctaCB-(205)	ng/L	0.026 U (1)	0.026	0.098				3445740
22'33'44'55'6-NonaCB-(206)	ng/L	0.592	0.022	0.098				3445740
22'33'44'566'-NonaCB-(207)	ng/L	0.063 J	0.016	0.098				3445740
22'33'455'66'-NonaCB-(208)	ng/L	0.141	0.019	0.098				3445740
DecaCB-(209)	ng/L	0.142	0.023	0.098				3445740
Monochlorobiphenyl	ng/L	0.024	0.019	N/A			1	3445740
Dichlorobiphenyl	ng/L	2.17	0.025	N/A			6	3445740
Trichlorobiphenyl	ng/L	11.1	0.033	N/A			15	3445740
Tetrachlorobiphenyl	ng/L	16.0	0.038	N/A			20	3445740
Pentachlorobiphenyl	ng/L	25.0	0.024	N/A			20	3445740
Hexachlorobiphenyl	ng/L	22.8	0.025	N/A			23	3445740
Heptachlorobiphenyl	ng/L	7.97	0.023	N/A			15	3445740

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient;

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0788							
Sampling Date		2013/11/18							
COC Number		NA		TOXIC EQUIVALENCY			# of		
	Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
Octachlorobiphenyl	ng/L	2.69	0.024	N/A			7	3445740	
Nonachlorobiphenyl	ng/L	0.796	0.022	N/A			3	3445740	
Decachlorobiphenyl	ng/L	0.142	0.023	N/A			1	3445740	
Total PCB	ng/L	88.8	N/A	N/A				3445740	
TOTAL TOXIC EQUIVALENCY	ng/L					0.00343			
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	101						3445740	
C13-22'33'44'55'6-NonaCB-(206)	%	94						3445740	
C13-22'33'44'5-HeptaCB-(170)	%	104						3445740	
C13-22'33'455'66'-NonaCB-(208)	%	93						3445740	
C13-22'33'55'66'-OctaCB-(202)	%	94						3445740	
C13-22'33'55'6-HeptaCB-(178)	%	105						3445740	
C13-22'344'55'-HeptaCB-(180)	%	103						3445740	
C13-22'34'566'-HeptaCB-(188)	%	88						3445740	
C13-22'44'66'-HexaCB-(155)	%	83						3445740	
C13-22'466'-PentaCB-(104)	%	81						3445740	
C13-22'66'-TetraCB-(54)	%	77						3445740	
C13-22'6-TriCB-(19)	%	66						3445740	
C13-22'-DiCB-(4)	%	49						3445740	
C13-233'44'55'6-OctaCB-(205)	%	101						3445740	
C13-233'44'55'-HeptaCB-(189)	%	109						3445740	
C13-233'44'-PentaCB-(105)	%	103						3445740	
C13-233'55'-PentaCB-(111)	%	95						3445740	
C13-23'44'55'-HexaCB-(167)	%	99						3445740	
C13-2344'5-PentaCB-(114)	%	99						3445740	
C13-23'44'5-PentaCB-(118)	%	103						3445740	
C13-2'344'5-PentaCB-(123)	%	101						3445740	
C13-2-MonoCB-(1)	%	45						3445740	
C13-33'44'55'-HexaCB-(169)	%	63						3445740	

RDL = Reportable Detection Limit
 EDL = Estimated Detection Limit
 QC Batch = Quality Control Batch
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
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 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
Report Date: 2013/12/27

Apex Laboratories
Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0788							
Sampling Date		2013/11/18 14:30							
COC Number		NA			TOXIC EQUIVALENCY	# of			
Units	B20-SP-20A-1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch		

C13-33'44'5-PentaCB-(126)	%	102							3445740
C13-33'44'-TetraCB-(77)	%	116							3445740
C13-344'5-TetraCB-(81)	%	114							3445740
C13-344'-TriCB-(37)	%	107							3445740
C13-44'-DiCB-(15)	%	95							3445740
C13-4-MonoCB-(3)	%	57							3445740
C13-DecaCB-(209)	%	81							3445740
C13-HexaCB-(156)+(157)	%	99							3445740

RDL = Reportable Detection Limit

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QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

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Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

2-MonoCB-(1)	ng/L	0.020 J	0.016	0.10				3445740
3-MonoCB-(2)	ng/L	0.014 U	0.014	0.10				3445740
4-MonoCB-(3)	ng/L	0.017 J	0.015	0.10				3445740
22'-DiCB-(4)	ng/L	0.16	0.018	0.10				3445740
2,3-DiCB-(5)	ng/L	0.020 U	0.020	0.10				3445740
2,3'-DiCB-(6)	ng/L	0.077 J	0.017	0.10				3445740
2,4-DiCB-(7)	ng/L	0.017 U	0.017	0.10				3445740
2,4'-DiCB-(8)	ng/L	0.34	0.016	0.10				3445740
2,5-DiCB-(9)	ng/L	0.020 U (1)	0.020	0.10				3445740
2,6-DiCB-(10)	ng/L	0.015 U	0.015	0.10				3445740
3,3'-DiCB-(11)	ng/L	0.25	0.017	0.10				3445740
DiCB-(12)+(13)	ng/L	0.044 U (1)	0.044	0.20				3445740
3,5-DiCB-(14)	ng/L	0.017 U	0.017	0.10				3445740
4,4'-DiCB-(15)	ng/L	0.39	0.029	0.10				3445740
22'3-TriCB-(16)	ng/L	0.41	0.023	0.10				3445740
22'4-TriCB-(17)	ng/L	0.38	0.020	0.10				3445740
TriCB-(18)+(30)	ng/L	0.74	0.016	0.20				3445740
22'6-TriCB-(19)	ng/L	0.087 J	0.018	0.10				3445740
TriCB-(20) + (28)	ng/L	1.79	0.018	0.20				3445740
TriCB-(21)+(33)	ng/L	1.04	0.019	0.20				3445740
234'-TriCB-(22)	ng/L	0.72	0.019	0.10				3445740
235-TriCB-(23)	ng/L	0.019 U	0.019	0.10				3445740
236-TriCB-(24)	ng/L	0.020 J	0.015	0.10				3445740
23'4-TriCB-(25)	ng/L	0.13	0.019	0.10				3445740
TriCB-(26)+(29)	ng/L	0.26	0.018	0.20				3445740
23'6-TriCB-(27)	ng/L	0.063 J	0.014	0.10				3445740
24'5-TriCB-(31)	ng/L	1.41	0.017	0.10				3445740
24'6-TriCB-(32)	ng/L	0.28	0.013	0.10				3445740

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY		# of	
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

23'5'-TriCB-(34)	ng/L	0.019 U	0.019	0.10				3445740
33'4-TriCB-(35)	ng/L	0.029 J	0.018	0.10				3445740
33'5-TriCB-(36)	ng/L	0.015 U	0.015	0.10				3445740
344'-TriCB-(37)	ng/L	0.64	0.022	0.10				3445740
345-TriCB-(38)	ng/L	0.018 U	0.018	0.10				3445740
34'5-TriCB-(39)	ng/L	0.016 U	0.016	0.10				3445740
TetraCB-(40)+(41)+(71)	ng/L	0.96	0.022	0.30				3445740
22'34'-TetraCB-(42)	ng/L	0.48	0.026	0.10				3445740
22'35-TetraCB-(43)	ng/L	0.080 J	0.036	0.10				3445740
TetraCB-(44)+(47)+(65)	ng/L	1.56	0.022	0.30				3445740
TetraCB-(45)+(51)	ng/L	0.25	0.022	0.20				3445740
22'36'-TetraCB-(46)	ng/L	0.091 J	0.027	0.10				3445740
22'45-TetraCB-(48)	ng/L	0.28	0.022	0.10				3445740
TetraCB-(49)+TetraCB-(69)	ng/L	0.79	0.020	0.20				3445740
TetraCB-(50)+(53)	ng/L	0.165 J	0.022	0.20				3445740
22'55'-TetraCB-(52)	ng/L	1.40	0.020	0.10				3445740
22'66'-TetraCB-(54)	ng/L	0.017 U	0.017	0.10				3445740
233'4-TetraCB-(55)	ng/L	0.020 U	0.020	0.10				3445740
233'4'-Tetra CB(56)	ng/L	0.53	0.022	0.10				3445740
233'5-TetraCB-(57)	ng/L	0.020 U	0.020	0.10				3445740
233'5'-TetraCB-(58)	ng/L	0.020 U	0.020	0.10				3445740
TetraCB-(59)+(62)+(75)	ng/L	0.143 J	0.017	0.30				3445740
2344'-TetraCB -(60)	ng/L	0.25	0.020	0.10				3445740
TetraCB-(61)+(70)+(74)+(76)	ng/L	2.01	0.020	0.40				3445740
234'5-TetraCB-(63)	ng/L	0.034 J	0.019	0.10				3445740
234'6-TetraCB-(64)	ng/L	0.81	0.019	0.10				3445740
23'44'-TetraCB-(66)	ng/L	0.96	0.019	0.10				3445740
23'45-TetraCB-(67)	ng/L	0.037 J	0.019	0.10				3445740
23'45'-TetraCB-(68)	ng/L	0.018 U	0.018	0.10				3445740

RDL = Reportable Detection Limit

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QC Batch = Quality Control Batch

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The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY		# of	
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

23'55'-TetraCB-(72)	ng/L	0.019 U	0.019	0.10				3445740
23'5'6-TetraCB-(73)	ng/L	0.015 U	0.015	0.10				3445740
33'44'-TetraCB-(77)	ng/L	0.14	0.024	0.10	0.000100	0.0000140		3445740
33'45-TetraCB-(78)	ng/L	0.020 U	0.020	0.10				3445740
33'45'-TetraCB(79)	ng/L	0.018 U	0.018	0.10				3445740
33'55'-TetraCB-(80)	ng/L	0.018 U	0.018	0.10				3445740
344'5-TetraCB-(81)	ng/L	0.024 U	0.024	0.10	0.000300	0.00000720		3445740
22'33'4-PentaCB-(82)	ng/L	0.26	0.027	0.10				3445740
PentaCB-(83)+(99)	ng/L	0.82	0.024	0.20				3445740
22'33'6-PentaCB-(84)	ng/L	0.49	0.029	0.10				3445740
PentaCB-(85)+(116)+(117)	ng/L	0.254 J	0.019	0.30				3445740
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	1.30	0.021	0.60				3445740
PentaCB-(88)+(91)	ng/L	0.22	0.024	0.20				3445740
22'346'-PentaCB-(89)	ng/L	0.026 U	0.026	0.10				3445740
PentaCB-(90)+(101)+(113)	ng/L	1.71	0.021	0.30				3445740
22'355'-PentaCB-(92)	ng/L	0.27	0.024	0.10				3445740
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.071 J	0.025	0.40				3445740
22'356'-PentaCB-(94)	ng/L	0.026 U	0.026	0.10				3445740
22'35'6-PentaCB-(95)	ng/L	1.32	0.023	0.10				3445740
22'366'-PentaCB-(96)	ng/L	0.019 U	0.019	0.10				3445740
22'45'6-PentaCB-(103)	ng/L	0.021 U	0.021	0.10				3445740
22'466'-PentaCB-(104)	ng/L	0.017 U	0.017	0.10				3445740
233'44'-PentaCB-(105)	ng/L	0.84	0.020	0.10	0.0000300	0.0000252		3445740
233'45-PentaCB-(106)	ng/L	0.018 U	0.018	0.10				3445740
233'4'5-PentaCB-(107)	ng/L	0.12	0.017	0.10				3445740
PentaCB-(108)+(124)	ng/L	0.069 J	0.018	0.20				3445740
PentaCB-(110)+(115)	ng/L	2.79	0.021	0.20				3445740
233'55'-PentaCB-(111)	ng/L	0.017 U	0.017	0.10				3445740
233'56-PentaCB-(112)	ng/L	0.018 U	0.018	0.10				3445740

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Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

2344'5-PentaCB-(114)	ng/L	0.044 J	0.020	0.10	0.0000300	0.00000132		3445740
23'44'5-PentaCB-(118)	ng/L	1.92	0.020	0.10	0.0000300	0.00000576		3445740
23'455'-PentaCB-(120)	ng/L	0.017 U	0.017	0.10				3445740
23'45'6-PentaCB-(121)	ng/L	0.017 U	0.017	0.10				3445740
233'4'5'-PentaCB-(122)	ng/L	0.023 U (1)	0.023	0.10				3445740
23'44'5'-PentaCB-(123)	ng/L	0.026 J	0.022	0.10	0.0000300	0.000000780		3445740
33'44'5-PentaCB-(126)	ng/L	0.020 U	0.020	0.10	0.100	0.00200		3445740
33'455'-PentaCB-(127)	ng/L	0.018 U	0.018	0.10				3445740
HexaCB-(128)+(166)	ng/L	0.45	0.016	0.20				3445740
HexaCB-(129)+(138)+(163)	ng/L	3.30	0.018	0.30				3445740
22'33'45'-HexaCB-(130)	ng/L	0.17	0.021	0.10				3445740
22'33'46-HexaCB-(131)	ng/L	0.041 J	0.024	0.10				3445740
22'33'46'-HexaCB-(132)	ng/L	0.93	0.020	0.10				3445740
22'33'55'-HexaCB-(133)	ng/L	0.031 J	0.019	0.10				3445740
HexaCB-(134)+(143)	ng/L	0.135 J	0.022	0.20				3445740
HexaCB-(135)+(151)	ng/L	0.66	0.030	0.20				3445740
22'33'66'-HexaCB-(136)	ng/L	0.27	0.022	0.10				3445740
22'344'5-HexaCB-(137)	ng/L	0.14	0.020	0.10				3445740
HexaCB-(139)+(140)	ng/L	0.041 J	0.017	0.20				3445740
22'3455'-HexaCB-(141)	ng/L	0.53	0.019	0.10				3445740
22'3456-HexaCB-(142)	ng/L	0.021 U	0.021	0.10				3445740
22'345'6-HexaCB-(144)	ng/L	0.11	0.030	0.10				3445740
22'3466'-HexaCB-(145)	ng/L	0.023 U	0.023	0.10				3445740
22'34'55'-HexaCB-(146)	ng/L	0.33	0.018	0.10				3445740
HexaCB-(147)+(149)	ng/L	1.79	0.017	0.20				3445740
22'34'56'-HexaCB-(148)	ng/L	0.030 U	0.030	0.10				3445740
22'34'66'-HexaCB-(150)	ng/L	0.021 U	0.021	0.10				3445740
22'3566'-HexaCB-(152)	ng/L	0.023 U	0.023	0.10				3445740

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY		# of	
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

HexaCB-(153)+(168)	ng/L	1.96	0.014	0.20				3445740
22'44'56'-HexaCB-(154)	ng/L	0.026 U	0.026	0.10				3445740
22'44'66'-HexaCB-(155)	ng/L	0.023 U	0.023	0.10				3445740
HexaCB-(156)+(157)	ng/L	0.35	0.016	0.20	0.0000300	0.0000105		3445740
233'44'6-HexaCB-(158)	ng/L	0.30	0.014	0.10				3445740
233'455'-HexaCB-(159)	ng/L	0.022 J	0.015	0.10				3445740
233'456-HexaCB-(160)	ng/L	0.014 U	0.014	0.10				3445740
233'45'6-HexaCB-(161)	ng/L	0.014 U	0.014	0.10				3445740
233'4'55'-HexaCB-(162)	ng/L	0.015 U	0.015	0.10				3445740
233'4'5'6-HexaCB-(164)	ng/L	0.18	0.014	0.10				3445740
233'55'6-HexaCB-(165)	ng/L	0.015 U	0.015	0.10				3445740
23'44'55'-HexaCB-(167)	ng/L	0.11	0.017	0.10	0.0000300	0.00000330		3445740
33'44'55'-HexaCB-(169)	ng/L	0.017 U	0.017	0.10	0.0300	0.000510		3445740
22'33'44'5-HeptaCB-(170)	ng/L	0.56	0.022	0.10				3445740
HeptaCB-(171)+(173)	ng/L	0.160 J	0.026	0.20				3445740
22'33'455'-HeptaCB-(172)	ng/L	0.093 J	0.027	0.10				3445740
22'33'456'-HeptaCB-(174)	ng/L	0.52	0.025	0.10				3445740
22'33'45'6-HeptaCB-(175)	ng/L	0.019 J	0.013	0.10				3445740
22'33'466'-HeptaCB-(176)	ng/L	0.059 J	0.010	0.10				3445740
22'33'45'6'-HeptaCB-(177)	ng/L	0.30	0.027	0.10				3445740
22'33'55'6-HeptaCB-(178)	ng/L	0.089 J	0.014	0.10				3445740
22'33'566'-HeptaCB-(179)	ng/L	0.19	0.0098	0.10				3445740
HeptaCB-(180)+(193)	ng/L	1.27	0.021	0.20				3445740
22'344'56-HeptaCB-(181)	ng/L	0.025 U	0.025	0.10				3445740
22'344'56'-HeptaCB-(182)	ng/L	0.014 U	0.014	0.10				3445740
22'344'5'6-HeptaCB-(183)	ng/L	0.26	0.021	0.10				3445740
22'344'66'-HeptaCB-(184)	ng/L	0.0094 U	0.0094	0.10				3445740
22'3455'6-HeptaCB-(185)	ng/L	0.046 J	0.028	0.10				3445740
22'34566'-HeptaCB-(186)	ng/L	0.010 U	0.010	0.10				3445740

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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

22'34'55'6-HeptaCB-(187)	ng/L	0.56	0.013	0.10				3445740
22'34'56'-HeptaCB-(188)	ng/L	0.012 U	0.012	0.10				3445740
233'44'55'-HeptaCB-(189)	ng/L	0.026 J	0.021	0.10	0.0000300	0.000000780		3445740
233'44'56-HeptaCB-(190)	ng/L	0.10	0.021	0.10				3445740
233'44'5'6-HeptaCB-(191)	ng/L	0.020 U	0.020	0.10				3445740
233'455'6-HeptaCB-(192)	ng/L	0.021 U	0.021	0.10				3445740
22'33'44'55'-OctaCB-(194)	ng/L	0.28	0.021	0.10				3445740
22'33'44'56-OctaCB-(195)	ng/L	0.096 J	0.021	0.10				3445740
22'33'44'56'-OctaCB-(196)	ng/L	0.15	0.024	0.10				3445740
22'33'44'66-OctaCB-(197)	ng/L	0.017 U	0.017	0.10				3445740
OctaCB-(198)+(199)	ng/L	0.34	0.023	0.20				3445740
22'33'4566'-OctaCB-(200)	ng/L	0.033 J	0.016	0.10				3445740
22'33'45'66'-OctaCB-(201)	ng/L	0.040 J	0.016	0.10				3445740
22'33'55'66'-OctaCB-(202)	ng/L	0.059 U (1)	0.059	0.10				3445740
22'344'55'6-OctaCB-(203)	ng/L	0.21	0.022	0.10				3445740
22'344'566'-OctaCB-(204)	ng/L	0.017 U	0.017	0.10				3445740
233'44'55'6-OctaCB-(205)	ng/L	0.017 U	0.017	0.10				3445740
22'33'44'55'6-NonaCB-(206)	ng/L	0.21	0.027	0.10				3445740
22'33'44'566'-NonaCB-(207)	ng/L	0.020 U	0.020	0.10				3445740
22'33'455'66'-NonaCB-(208)	ng/L	0.071 J	0.024	0.10				3445740
DecaCB-(209)	ng/L	0.087 J	0.024	0.10				3445740
Monochlorobiphenyl	ng/L	0.037	0.016	N/A		2		3445740
Dichlorobiphenyl	ng/L	1.22	0.029	N/A		5		3445740
Trichlorobiphenyl	ng/L	8.00	0.023	N/A		15		3445740
Tetrachlorobiphenyl	ng/L	11.0	0.036	N/A		19		3445740
Pentachlorobiphenyl	ng/L	12.5	0.029	N/A		17		3445740
Hexachlorobiphenyl	ng/L	11.8	0.030	N/A		21		3445740
Heptachlorobiphenyl	ng/L	4.24	0.028	N/A		15		3445740

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

Octachlorobiphenyl	ng/L	1.16	0.024	N/A			7	3445740
Nonachlorobiphenyl	ng/L	0.277	0.027	N/A			2	3445740
Decachlorobiphenyl	ng/L	0.087	0.024	N/A			1	3445740
Total PCB	ng/L	50.4	N/A	N/A				3445740
TOTAL TOXIC EQUIVALENCY	ng/L				0.00263			
Surrogate Recovery (%)								
C13-2,44'-TriCB-(28)	%	103						3445740
C13-22'33'44'55'6-NonaCB-(206)	%	95						3445740
C13-22'33'44'5-HeptaCB-(170)	%	104						3445740
C13-22'33'455'66'-NonaCB-(208)	%	96						3445740
C13-22'33'55'66'-OctaCB-(202)	%	95						3445740
C13-22'33'55'6-HeptaCB-(178)	%	106						3445740
C13-22'344'55'-HeptaCB-(180)	%	107						3445740
C13-22'34'566'-HeptaCB-(188)	%	90						3445740
C13-22'44'66'-HexaCB-(155)	%	85						3445740
C13-22'466'-PentaCB-(104)	%	82						3445740
C13-22'66'-TetraCB-(54)	%	79						3445740
C13-22'6-TriCB-(19)	%	69						3445740
C13-22'-DiCB-(4)	%	50						3445740
C13-233'44'55'6-OctaCB-(205)	%	99						3445740
C13-233'44'55'-HeptaCB-(189)	%	110						3445740
C13-233'44'-PentaCB-(105)	%	105						3445740
C13-233'55'-PentaCB-(111)	%	97						3445740
C13-23'44'55'-HexaCB-(167)	%	102						3445740
C13-2344'5-PentaCB-(114)	%	103						3445740
C13-23'44'5-PentaCB-(118)	%	103						3445740
C13-2'344'5-PentaCB-(123)	%	105						3445740
C13-2-MonoCB-(1)	%	46						3445740
C13-33'44'55'-HexaCB-(169)	%	61						3445740

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Maxxam Job #: B3K2315
Report Date: 2013/12/27

Apex Laboratories
Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0789						
Sampling Date		2013/11/18 15:10						
COC Number		NA			TOXIC EQUIVALENCY	# of		
Units	B18-SP1-20131118	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

C13-33'44'5-PentaCB-(126)	%	103						3445740
C13-33'44'-TetraCB-(77)	%	117						3445740
C13-344'5-TetraCB-(81)	%	117						3445740
C13-344'-TriCB-(37)	%	110						3445740
C13-44'-DiCB-(15)	%	98						3445740
C13-4-MonoCB-(3)	%	58						3445740
C13-DecaCB-(209)	%	79						3445740
C13-HexaCB-(156)+(157)	%	100						3445740

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Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0790						
Sampling Date		2013/11/18 09:45						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

2-MonoCB-(1)	ng/L	0.087 J	0.011	0.095				3445740
3-MonoCB-(2)	ng/L	0.0190 J	0.0090	0.095				3445740
4-MonoCB-(3)	ng/L	0.0768 J	0.0099	0.095				3445740
2,2'-DiCB-(4)	ng/L	1.42	0.022	0.095				3445740
2,3-DiCB-(5)	ng/L	0.063 J	0.016	0.095				3445740
2,3'-DiCB-(6)	ng/L	0.645	0.014	0.095				3445740
2,4-DiCB-(7)	ng/L	0.095	0.014	0.095				3445740
2,4'-DiCB-(8)	ng/L	3.01	0.013	0.095				3445740
2,5-DiCB-(9)	ng/L	0.149	0.014	0.095				3445740
2,6-DiCB-(10)	ng/L	0.051 J	0.018	0.095				3445740
3,3'-DiCB-(11)	ng/L	0.544	0.014	0.095				3445740
DiCB-(12)+(13)	ng/L	0.50	0.014	0.19				3445740
3,5-DiCB-(14)	ng/L	0.014 U	0.014	0.095				3445740
4,4'-DiCB-(15)	ng/L	6.88	0.023	0.095				3445740
22'3-TriCB-(16)	ng/L	5.18	0.030	0.095				3445740
22'4-TriCB-(17)	ng/L	4.74	0.027	0.095				3445740
TriCB-(18)+(30)	ng/L	9.15	0.021	0.19				3445740
22'6-TriCB-(19)	ng/L	1.19	0.024	0.095				3445740
TriCB-(20) + (28)	ng/L	25.2	0.016	0.19				3445740
TriCB-(21)+(33)	ng/L	12.5	0.016	0.19				3445740
234'-TriCB-(22)	ng/L	9.67	0.016	0.095				3445740
235-TriCB-(23)	ng/L	0.017 J	0.017	0.095				3445740
236-TriCB-(24)	ng/L	0.233	0.019	0.095				3445740
23'4-TriCB-(25)	ng/L	1.81	0.016	0.095				3445740
TriCB-(26)+(29)	ng/L	3.68	0.016	0.19				3445740
23'6-TriCB-(27)	ng/L	0.972	0.018	0.095				3445740
24'5-TriCB-(31)	ng/L	17.6	0.015	0.095				3445740
24'6-TriCB-(32)	ng/L	4.07	0.016	0.095				3445740
23'5'-TriCB-(34)	ng/L	0.055 J	0.016	0.095				3445740

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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
 Report Date: 2013/12/27

Apex Laboratories
 Client Project #: A3K0592

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0790						
Sampling Date		2013/11/18 09:45						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

33'4-TriCB-(35)	ng/L	0.513	0.016	0.095				3445740
33'5-TriCB-(36)	ng/L	0.013 U	0.013	0.095				3445740
344'-TriCB-(37)	ng/L	9.32	0.019	0.095				3445740
345-TriCB-(38)	ng/L	0.016 U	0.016	0.095				3445740
34'5-TriCB-(39)	ng/L	0.111	0.014	0.095				3445740
TetraCB-(40)+(41)+(71)	ng/L	15.2	0.019	0.29				3445740
22'34'-TetraCB-(42)	ng/L	7.62	0.023	0.095				3445740
22'35-TetraCB-(43)	ng/L	1.15	0.031	0.095				3445740
TetraCB-(44)+(47)+(65)	ng/L	25.0	0.019	0.29				3445740
TetraCB-(45)+(51)	ng/L	3.86	0.019	0.19				3445740
22'36'-TetraCB-(46)	ng/L	1.50	0.023	0.095				3445740
22'45-TetraCB-(48)	ng/L	4.38	0.019	0.095				3445740
TetraCB-(49)+TetraCB-(69)	ng/L	13.0	0.017	0.19				3445740
TetraCB-(50)+(53)	ng/L	2.67	0.019	0.19				3445740
22'55'-TetraCB-(52)	ng/L	23.7	0.017	0.095				3445740
22'66'-TetraCB-(54)	ng/L	0.032 U (1)	0.032	0.095				3445740
233'4-TetraCB-(55)	ng/L	0.186	0.015	0.095				3445740
233'4'-Tetra CB(56)	ng/L	7.82	0.017	0.095				3445740
233'5-TetraCB-(57)	ng/L	0.066 J	0.015	0.095				3445740
233'5'-TetraCB-(58)	ng/L	0.015 U	0.015	0.095				3445740
TetraCB-(59)+(62)+(75)	ng/L	2.35	0.015	0.29				3445740
2344'-TetraCB -(60)	ng/L	3.42	0.015	0.095				3445740
TetraCB-(61)+(70)+(74)+(76)	ng/L	29.9	0.016	0.38				3445740
234'5-TetraCB-(63)	ng/L	0.504	0.014	0.095				3445740
234'6-TetraCB-(64)	ng/L	12.1	0.016	0.095				3445740
23'44'-TetraCB-(66)	ng/L	14.6	0.015	0.095				3445740
23'45-TetraCB-(67)	ng/L	0.595	0.014	0.095				3445740
23'45'-TetraCB-(68)	ng/L	0.045 J	0.014	0.095				3445740

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0790						
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COC Number		NA		TOXIC EQUIVALENCY		# of		
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'55'-TetraCB-(72)	ng/L	0.092 J	0.015	0.095				3445740
23'5'6-TetraCB-(73)	ng/L	0.013 U	0.013	0.095				3445740
33'44'-TetraCB-(77)	ng/L	1.94	0.018	0.095	0.000100	0.000194		3445740
33'45-TetraCB-(78)	ng/L	0.015 U	0.015	0.095				3445740
33'45'-TetraCB(79)	ng/L	0.217	0.014	0.095				3445740
33'55'-TetraCB-(80)	ng/L	0.014 U	0.014	0.095				3445740
344'5-TetraCB-(81)	ng/L	0.052 U (1)	0.052	0.095	0.000300	0.0000156		3445740
22'33'4-PentaCB-(82)	ng/L	4.70	0.025	0.095				3445740
PentaCB-(83)+(99)	ng/L	16.0	0.022	0.19				3445740
22'33'6-PentaCB-(84)	ng/L	9.60	0.026	0.095				3445740
PentaCB-(85)+(116)+(117)	ng/L	5.46	0.017	0.29				3445740
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	25.3	0.019	0.57				3445740
PentaCB-(88)+(91)	ng/L	3.96	0.021	0.19				3445740
22'346'-PentaCB-(89)	ng/L	0.348	0.023	0.095				3445740
PentaCB-(90)+(101)+(113)	ng/L	31.7	0.019	0.29				3445740
22'355'-PentaCB-(92)	ng/L	5.34	0.022	0.095				3445740
PentaCB-(93)+(98)+(100)+(102)	ng/L	1.14	0.022	0.38				3445740
22'356'-PentaCB-(94)	ng/L	0.126	0.023	0.095				3445740
22'35'6-PentaCB-(95)	ng/L	24.1	0.021	0.095				3445740
22'366'-PentaCB-(96)	ng/L	0.207	0.018	0.095				3445740
22'45'6-PentaCB-(103)	ng/L	0.116	0.019	0.095				3445740
22'466'-PentaCB-(104)	ng/L	0.015 U	0.015	0.095				3445740
233'44'-PentaCB-(105)	ng/L	15.7	0.019	0.095	0.0000300	0.000471		3445740
233'45-PentaCB-(106)	ng/L	0.016 U	0.016	0.095				3445740
233'4'5-PentaCB-(107)	ng/L	1.97	0.015	0.095				3445740
PentaCB-(108)+(124)	ng/L	1.28	0.016	0.19				3445740
PentaCB-(110)+(115)	ng/L	50.9	0.019	0.19				3445740
233'55'-PentaCB-(111)	ng/L	0.015 U	0.015	0.095				3445740

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0790							
Sampling Date		2013/11/18 09:45							
COC Number		NA		TOXIC EQUIVALENCY		# of			
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
233'56-PentaCB-(112)	ng/L	0.016 U	0.016	0.095					3445740
2344'5-PentaCB-(114)	ng/L	0.691	0.018	0.095	0.0000300	0.0000207			3445740
23'44'5-PentaCB-(118)	ng/L	35.4	0.019	0.095	0.0000300	0.00106			3445740
23'455'-PentaCB-(120)	ng/L	0.034 J	0.015	0.095					3445740
23'45'6-PentaCB-(121)	ng/L	0.016 U	0.016	0.095					3445740
233'4'5'-PentaCB-(122)	ng/L	0.432	0.018	0.095					3445740
23'44'5'-PentaCB-(123)	ng/L	0.535	0.020	0.095	0.0000300	0.0000161			3445740
33'44'5-PentaCB-(126)	ng/L	0.131	0.018	0.095	0.100	0.0131			3445740
33'455'-PentaCB-(127)	ng/L	0.049 J	0.016	0.095					3445740
HexaCB-(128)+(166)	ng/L	8.38	0.019	0.19					3445740
HexaCB-(129)+(138)+(163)	ng/L	53.7	0.021	0.29					3445740
22'33'45'-HexaCB-(130)	ng/L	2.87	0.024	0.095					3445740
22'33'46-HexaCB-(131)	ng/L	0.691	0.028	0.095					3445740
22'33'46'-HexaCB-(132)	ng/L	16.3	0.024	0.095					3445740
22'33'55'-HexaCB-(133)	ng/L	0.421	0.022	0.095					3445740
HexaCB-(134)+(143)	ng/L	2.33	0.025	0.19					3445740
HexaCB-(135)+(151)	ng/L	10.1	0.027	0.19					3445740
22'33'66'-HexaCB-(136)	ng/L	4.04	0.021	0.095					3445740
22'344'5-HexaCB-(137)	ng/L	2.96	0.024	0.095					3445740
HexaCB-(139)+(140)	ng/L	0.68	0.020	0.19					3445740
22'3455'-HexaCB-(141)	ng/L	7.97	0.022	0.095					3445740
22'3456-HexaCB-(142)	ng/L	0.024 U	0.024	0.095					3445740
22'345'6-HexaCB-(144)	ng/L	1.59	0.027	0.095					3445740
22'3466'-HexaCB-(145)	ng/L	0.021 U	0.021	0.095					3445740
22'34'55'-HexaCB-(146)	ng/L	5.02	0.020	0.095					3445740
HexaCB-(147)+(149)	ng/L	28.3	0.020	0.19					3445740
22'34'56'-HexaCB-(148)	ng/L	0.027 U	0.027	0.095					3445740
22'34'66'-HexaCB-(150)	ng/L	0.032 J	0.019	0.095					3445740
22'3566'-HexaCB-(152)	ng/L	0.026 U	0.026	0.095					3445740

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Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0790						
Sampling Date		2013/11/18 09:45						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

HexaCB-(153)+(168)	ng/L	30.5	0.017	0.19				3445740
22'44'56'-HexaCB-(154)	ng/L	0.240	0.024	0.095				3445740
22'44'66'-HexaCB-(155)	ng/L	0.021 U	0.021	0.095				3445740
HexaCB-(156)+(157)	ng/L	6.07	0.018	0.19	0.0000300	0.000182		3445740
233'44'6-HexaCB-(158)	ng/L	5.21	0.016	0.095				3445740
233'455'-HexaCB-(159)	ng/L	0.263	0.017	0.095				3445740
233'456-HexaCB-(160)	ng/L	0.017 U	0.017	0.095				3445740
233'45'6-HexaCB-(161)	ng/L	0.016 U	0.016	0.095				3445740
233'4'55'-HexaCB-(162)	ng/L	0.152	0.017	0.095				3445740
233'4'5'6-HexaCB-(164)	ng/L	2.83	0.016	0.095				3445740
233'55'6-HexaCB-(165)	ng/L	0.018 U	0.018	0.095				3445740
23'44'55'-HexaCB-(167)	ng/L	1.80	0.019	0.095	0.0000300	0.0000540		3445740
33'44'55'-HexaCB-(169)	ng/L	0.019 U	0.019	0.095	0.0300	0.000570		3445740
22'33'44'5-HeptaCB-(170)	ng/L	7.30	0.025	0.095				3445740
HeptaCB-(171)+(173)	ng/L	2.07	0.030	0.19				3445740
22'33'455'-HeptaCB-(172)	ng/L	1.17	0.031	0.095				3445740
22'33'456'-HeptaCB-(174)	ng/L	7.56	0.029	0.095				3445740
22'33'45'6-HeptaCB-(175)	ng/L	0.313	0.023	0.095				3445740
22'33'466'-HeptaCB-(176)	ng/L	0.773	0.017	0.095				3445740
22'33'45'6'-HeptaCB-(177)	ng/L	3.89	0.031	0.095				3445740
22'33'55'6-HeptaCB-(178)	ng/L	1.33	0.024	0.095				3445740
22'33'566'-HeptaCB-(179)	ng/L	2.67	0.017	0.095				3445740
HeptaCB-(180)+(193)	ng/L	19.3	0.024	0.19				3445740
22'344'56-HeptaCB-(181)	ng/L	0.095	0.028	0.095				3445740
22'344'56'-HeptaCB-(182)	ng/L	0.047 J	0.024	0.095				3445740
22'344'5'6-HeptaCB-(183)	ng/L	4.36	0.023	0.095				3445740
22'344'66'-HeptaCB-(184)	ng/L	0.016 U	0.016	0.095				3445740
22'3455'6-HeptaCB-(185)	ng/L	0.032 U	0.032	0.095				3445740
22'34566'-HeptaCB-(186)	ng/L	0.017 U	0.017	0.095				3445740

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0790						
Sampling Date		2013/11/18 09:45						
COC Number		NA		TOXIC EQUIVALENCY		# of		
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'34'55'6-HeptaCB-(187)	ng/L	9.71	0.022	0.095				3445740
22'34'56'6-HeptaCB-(188)	ng/L	0.020 U	0.020	0.095				3445740
233'44'55'-HeptaCB-(189)	ng/L	0.313	0.023	0.095	0.0000300	0.00000939		3445740
233'44'56-HeptaCB-(190)	ng/L	1.41	0.024	0.095				3445740
233'44'56-HeptaCB-(191)	ng/L	0.258	0.022	0.095				3445740
233'455'6-HeptaCB-(192)	ng/L	0.023 U	0.023	0.095				3445740
22'33'44'55'-OctaCB-(194)	ng/L	6.18	0.024	0.095				3445740
22'33'44'56-OctaCB-(195)	ng/L	1.46	0.024	0.095				3445740
22'33'44'56'-OctaCB-(196)	ng/L	2.86	0.023	0.095				3445740
22'33'44'66'-OctaCB-(197)	ng/L	0.158	0.017	0.095				3445740
OctaCB-(198)+(199)	ng/L	8.44	0.023	0.19				3445740
22'33'4566'-OctaCB-(200)	ng/L	0.685	0.015	0.095				3445740
22'33'45'66'-OctaCB-(201)	ng/L	0.827	0.016	0.095				3445740
22'33'55'66'-OctaCB-(202)	ng/L	1.88	0.021	0.095				3445740
22'344'55'6-OctaCB-(203)	ng/L	5.75	0.021	0.095				3445740
22'344'566'-OctaCB-(204)	ng/L	0.016 U	0.016	0.095				3445740
233'44'55'6-OctaCB-(205)	ng/L	0.210	0.020	0.095				3445740
22'33'44'55'6-NonaCB-(206)	ng/L	7.72	0.028	0.095				3445740
22'33'44'566'-NonaCB-(207)	ng/L	0.685	0.021	0.095				3445740
22'33'455'66'-NonaCB-(208)	ng/L	1.63	0.025	0.095				3445740
DecaCB-(209)	ng/L	1.59	0.025	0.095				3445740
Monochlorobiphenyl	ng/L	0.183	0.011	N/A			3	3445740
Dichlorobiphenyl	ng/L	13.4	0.023	N/A			10	3445740
Trichlorobiphenyl	ng/L	106	0.030	N/A			18	3445740
Tetrachlorobiphenyl	ng/L	172	0.031	N/A			24	3445740
Pentachlorobiphenyl	ng/L	235	0.026	N/A			25	3445740
Hexachlorobiphenyl	ng/L	192	0.028	N/A			24	3445740
Heptachlorobiphenyl	ng/L	62.6	0.032	N/A			17	3445740
Octachlorobiphenyl	ng/L	28.4	0.024	N/A			10	3445740

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		UA0790						
Sampling Date		2013/11/18 09:45						
COC Number		NA			TOXIC EQUIVALENCY	# of		
	Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Nonachlorobiphenyl	ng/L	10.0	0.028	N/A			3	3445740
Decachlorobiphenyl	ng/L	1.59	0.025	N/A			1	3445740
Total PCB	ng/L	822	N/A	N/A				3445740
TOTAL TOXIC EQUIVALENCY	ng/L					0.0157		
Surrogate Recovery (%)								
C13-2,44'-TriCB-(28)	%	113						3445740
C13-22'33'44'55'6-NonaCB-(206)	%	95						3445740
C13-22'33'44'5-HeptaCB-(170)	%	108						3445740
C13-22'33'455'66'-NonaCB-(208)	%	102						3445740
C13-22'33'55'66'-OctaCB-(202)	%	98						3445740
C13-22'33'55'6-HeptaCB-(178)	%	112						3445740
C13-22'344'55'-HeptaCB-(180)	%	108						3445740
C13-22'34'566'-HeptaCB-(188)	%	92						3445740
C13-22'44'66'-HexaCB-(155)	%	88						3445740
C13-22'466'-PentaCB-(104)	%	87						3445740
C13-22'66'-TetraCB-(54)	%	84						3445740
C13-22'6-TriCB-(19)	%	78						3445740
C13-22'-DiCB-(4)	%	58						3445740
C13-233'44'55'6-OctaCB-(205)	%	103						3445740
C13-233'44'55'-HeptaCB-(189)	%	113						3445740
C13-233'44'-PentaCB-(105)	%	105						3445740
C13-233'55'-PentaCB-(111)	%	103						3445740
C13-23'44'55'-HexaCB-(167)	%	104						3445740
C13-2344'5-PentaCB-(114)	%	101						3445740
C13-23'44'5-PentaCB-(118)	%	105						3445740
C13-2'344'5-PentaCB-(123)	%	106						3445740
C13-2-MonoCB-(1)	%	54						3445740
C13-33'44'55'-HexaCB-(169)	%	63						3445740
C13-33'44'5-PentaCB-(126)	%	102						3445740

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Maxxam ID		UA0790							
Sampling Date		2013/11/18 09:45							
COC Number		NA			TOXIC EQUIVALENCY	# of			
Units	B19-SP-19-1-20131119	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch		

C13-33'44'-TetraCB-(77)	%	121							3445740
C13-344'5-TetraCB-(81)	%	118							3445740
C13-344'-TriCB-(37)	%	113							3445740
C13-44'-DiCB-(15)	%	105							3445740
C13-4-MonoCB-(3)	%	69							3445740
C13-DecaCB-(209)	%	83							3445740
C13-HexaCB-(156)+(157)	%	102							3445740

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3K2315
Report Date: 2013/12/27

Apex Laboratories
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Test Summary

Maxxam ID UA0787
Sample ID B22-SP1-20131118
Matrix Water

Collected 2013/11/18
Shipped
Received 2013/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	3444979	2013/12/02	2013/12/03	Owen Cosby
PCB Congeners in Water (1668A)	HRMS/MS	3445740	2013/11/29	2013/12/04	Cathy Xu

Maxxam ID UA0788
Sample ID B20-SP-20A-1-20131118
Matrix Water

Collected 2013/11/18
Shipped
Received 2013/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	3444979	2013/12/02	2013/12/04	Owen Cosby
PCB Congeners in Water (1668A)	HRMS/MS	3445740	2013/11/29	2013/12/04	Cathy Xu

Maxxam ID UA0789
Sample ID B18-SP1-20131118
Matrix Water

Collected 2013/11/18
Shipped
Received 2013/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	3444979	2013/12/02	2013/12/04	Owen Cosby
PCB Congeners in Water (1668A)	HRMS/MS	3445740	2013/11/29	2013/12/04	Cathy Xu

Maxxam ID UA0790
Sample ID B19-SP-19-1-20131119
Matrix Water

Collected 2013/11/18
Shipped
Received 2013/11/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	3444979	2013/12/02	2013/12/04	Owen Cosby
PCB Congeners in Water (1668A)	HRMS/MS	3445740	2013/11/29	2013/12/04	Cathy Xu

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Package 1	5.7°C
Package 2	5.4°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Revised report (2013/12/27): Homologs reported as per client's request.

Results relate only to the items tested.

Apex Laboratories
 Attention: Philip Nerenberg
 Client Project #: A3K0592
 P.O. #:
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Quality Assurance Report
 Maxxam Job Number: GB3K2315

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3444979 OBC	Spiked Blank	C13-1234678 HeptaCDD	2013/12/03	113	%	40 - 135	
		C13-1234678 HeptaCDF	2013/12/03	93	%	40 - 135	
		C13-123478 HexaCDF	2013/12/03	94	%	40 - 135	
		C13-123678 HexaCDD	2013/12/03	102	%	40 - 135	
		C13-12378 PentaCDD	2013/12/03	125	%	40 - 135	
		C13-12378 PentaCDF	2013/12/03	108	%	40 - 135	
		C13-2378 TetraCDD	2013/12/03	63	%	40 - 135	
		C13-2378 TetraCDF	2013/12/03	66	%	40 - 135	
		C13-OCDD	2013/12/03	105	%	40 - 135	
		2,3,7,8-Tetra CDD	2013/12/03	83	%	80 - 140	
		1,2,3,7,8-Penta CDD	2013/12/03	83	%	80 - 140	
		1,2,3,4,7,8-Hexa CDD	2013/12/03	81	%	80 - 140	
		1,2,3,6,7,8-Hexa CDD	2013/12/03	82	%	80 - 140	
		1,2,3,7,8,9-Hexa CDD	2013/12/03	84	%	80 - 140	
		1,2,3,4,6,7,8-Hepta CDD	2013/12/03	81	%	80 - 140	
		Octa CDD	2013/12/03	84	%	80 - 140	
		2,3,7,8-Tetra CDF	2013/12/03	82	%	80 - 140	
		1,2,3,7,8-Penta CDF	2013/12/03	80	%	80 - 140	
		2,3,4,7,8-Penta CDF	2013/12/03	86	%	80 - 140	
		1,2,3,4,7,8-Hexa CDF	2013/12/03	85	%	80 - 140	
		1,2,3,6,7,8-Hexa CDF	2013/12/03	84	%	80 - 140	
		2,3,4,6,7,8-Hexa CDF	2013/12/03	85	%	80 - 140	
		1,2,3,7,8,9-Hexa CDF	2013/12/03	81	%	80 - 140	
		1,2,3,4,6,7,8-Hepta CDF	2013/12/03	83	%	80 - 140	
		1,2,3,4,7,8,9-Hepta CDF	2013/12/03	81	%	80 - 140	
		Octa CDF	2013/12/03	80	%	80 - 140	
Method Blank		C13-1234678 HeptaCDD	2013/12/03	118	%	40 - 135	
		C13-1234678 HeptaCDF	2013/12/03	99	%	40 - 135	
		C13-123478 HexaCDF	2013/12/03	100	%	40 - 135	
		C13-123678 HexaCDD	2013/12/03	109	%	40 - 135	
		C13-12378 PentaCDD	2013/12/03	122	%	40 - 135	
		C13-12378 PentaCDF	2013/12/03	112	%	40 - 135	
		C13-2378 TetraCDD	2013/12/03	66	%	40 - 135	
		C13-2378 TetraCDF	2013/12/03	68	%	40 - 135	
		C13-OCDD	2013/12/03	115	%	40 - 135	
		2,3,7,8-Tetra CDD	2013/12/03	2.1 U, EDL=2.1	pg/L		
		1,2,3,7,8-Penta CDD	2013/12/03	2.2 U, EDL=2.2	pg/L		
		1,2,3,4,7,8-Hexa CDD	2013/12/03	1.4 U, EDL=1.4	pg/L		
		1,2,3,6,7,8-Hexa CDD	2013/12/03	1.0 U, EDL=1.0	pg/L		
		1,2,3,7,8,9-Hexa CDD	2013/12/03	1.2 U, EDL=1.2	pg/L		
		1,2,3,4,6,7,8-Hepta CDD	2013/12/03	1.4 U, EDL=1.4 (1)	pg/L		
		Octa CDD	2013/12/03	2.4 J, EDL=1.1	pg/L		
		Total Tetra CDD	2013/12/03	2.1 U, EDL=2.1	pg/L		
		Total Penta CDD	2013/12/03	2.2 U, EDL=2.2	pg/L		
		Total Hexa CDD	2013/12/03	2.9 U, EDL=2.9 (1)	pg/L		
		Total Hepta CDD	2013/12/03	1.4 U, EDL=1.4 (1)	pg/L		
		2,3,7,8-Tetra CDF	2013/12/03	1.2 U, EDL=1.2	pg/L		
		1,2,3,7,8-Penta CDF	2013/12/03	1.3 U, EDL=1.3	pg/L		
		2,3,4,7,8-Penta CDF	2013/12/03	1.4 U, EDL=1.4	pg/L		
		1,2,3,4,7,8-Hexa CDF	2013/12/03	0.98 U, EDL=0.98	pg/L		
		1,2,3,6,7,8-Hexa CDF	2013/12/03	0.82 U, EDL=0.82	pg/L		
		2,3,4,6,7,8-Hexa CDF	2013/12/03	1.0 U, EDL=1.0	pg/L		
		1,2,3,7,8,9-Hexa CDF	2013/12/03	1.3 U, EDL=1.3	pg/L		
		1,2,3,4,6,7,8-Hepta CDF	2013/12/03	0.96 U, EDL=0.96	pg/L		
		1,2,3,4,7,8,9-Hepta CDF	2013/12/03	1.3 U, EDL=1.3	pg/L		

Apex Laboratories
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Quality Assurance Report (Continued)

Maxxam Job Number: GB3K2315

QA/QC			Date Analyzed				
Batch			yyyy/mm/dd	Value	%Recovery	Units	QC Limits
Num	Init	QC Type	Parameter				
3444979	OBC	Method Blank	Octa CDF	2013/12/03	1.1 U, EDL=1.1	pg/L	
			Total Tetra CDF	2013/12/03	1.2 U, EDL=1.2	pg/L	
			Total Penta CDF	2013/12/03	1.4 U, EDL=1.4	pg/L	
			Total Hexa CDF	2013/12/03	0.99 U, EDL=0.99	pg/L	
			Total Hepta CDF	2013/12/03	1.1 U, EDL=1.1	pg/L	
3445740	CXU	Spiked Blank	C13-2,44'-TriCB-(28)	2013/12/04	68	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2013/12/04	101	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2013/12/04	102	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2013/12/04	101	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2013/12/04	91	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2013/12/04	98	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2013/12/04	102	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2013/12/04	82	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2013/12/04	67	%	30 - 140
			C13-22'466'-PentaCB-(104)	2013/12/04	59	%	30 - 140
			C13-22'66'-TetraCB-(54)	2013/12/04	48	%	30 - 140
			C13-22'6-TriCB-(19)	2013/12/04	41	%	30 - 140
			C13-22'-DiCB-(4)	2013/12/04	26 (2)	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2013/12/04	103	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2013/12/04	111	%	30 - 140
			C13-233'44'-PentaCB-(105)	2013/12/04	97	%	30 - 140
			C13-233'55'-PentaCB-(111)	2013/12/04	82	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2013/12/04	96	%	30 - 140
			C13-2344'5-PentaCB-(114)	2013/12/04	93	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2013/12/04	96	%	30 - 140
			C13-2344'5-PentaCB-(123)	2013/12/04	91	%	30 - 140
			C13-2-MonoCB-(1)	2013/12/04	25	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2013/12/04	67	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2013/12/04	100	%	30 - 140
			C13-33'44'-TetraCB-(77)	2013/12/04	103	%	30 - 140
			C13-344'5-TetraCB-(81)	2013/12/04	102	%	30 - 140
			C13-344'-TriCB-(37)	2013/12/04	82	%	30 - 140
			C13-44'-DiCB-(15)	2013/12/04	60	%	30 - 140
			C13-4-MonoCB-(3)	2013/12/04	30	%	15 - 140
			C13-DecaCB-(209)	2013/12/04	91	%	30 - 140
			C13-HexaCB-(156)+(157)	2013/12/04	101	%	30 - 140
			2-MonoCB-(1)	2013/12/04	109	%	50 - 150
			4-MonoCB-(3)	2013/12/04	96	%	50 - 150
			22'-DiCB-(4)	2013/12/04	102	%	50 - 150
			4,4'-DiCB-(15)	2013/12/04	90	%	50 - 150
			22'6-TriCB-(19)	2013/12/04	96	%	50 - 150
			235-TriCB-(23)	2013/12/04	92	%	50 - 150
			23'5'-TriCB-(34)	2013/12/04	85	%	50 - 150
			344'-TriCB-(37)	2013/12/04	88	%	50 - 150
			22'66'-TetraCB-(54)	2013/12/04	95	%	50 - 150
			33'44'-TetraCB-(77)	2013/12/04	91	%	50 - 150
			344'5-TetraCB-(81)	2013/12/04	88	%	50 - 150
			22'466'-PentaCB-(104)	2013/12/04	95	%	50 - 150
			233'44'-PentaCB-(105)	2013/12/04	89	%	50 - 150
			2344'5-PentaCB-(114)	2013/12/04	89	%	50 - 150
			23'44'5-PentaCB-(118)	2013/12/04	89	%	50 - 150
			23'44'5-PentaCB-(123)	2013/12/04	99	%	50 - 150
			33'44'5-PentaCB-(126)	2013/12/04	85	%	50 - 150
			22'44'66'-HexaCB-(155)	2013/12/04	95	%	50 - 150
			HexaCB-(156)+(157)	2013/12/04	91	%	50 - 150

Apex Laboratories
 Attention: Philip Nerenberg
 Client Project #: A3K0592
 P.O. #:
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Quality Assurance Report (Continued)

Maxxam Job Number: GB3K2315

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3445740 CXU	Spiked Blank	23'44'55'-HexaCB-(167)	2013/12/04	93	%	50 - 150	
		33'44'55'-HexaCB-(169)	2013/12/04	95	%	50 - 150	
		22'33'44'5-HeptaCB-(170)	2013/12/04	97	%	50 - 150	
		HeptaCB-(180)+(193)	2013/12/04	90	%	50 - 150	
		22'344'56'-HeptaCB-(182)	2013/12/04	88	%	50 - 150	
		22'34'55'6-HeptaCB-(187)	2013/12/04	81	%	50 - 150	
		22'34'566'-HeptaCB-(188)	2013/12/04	93	%	50 - 150	
		233'44'55'-HeptaCB-(189)	2013/12/04	90	%	50 - 150	
		22'33'55'66'-OctaCB-(202)	2013/12/04	98	%	50 - 150	
		233'44'55'6-OctaCB-(205)	2013/12/04	100	%	50 - 150	
		22'33'44'55'6-NonaCB-(206)	2013/12/04	97	%	50 - 150	
		22'33'455'66'-NonaCB-(208)	2013/12/04	97	%	50 - 150	
		DecaCB-(209)	2013/12/04	100	%	50 - 150	
		C13-2,44'-TriCB-(28)	2013/12/04	58	%	40 - 125	
		C13-22'33'44'55'6-NonaCB-(206)	2013/12/04	93	%	30 - 140	
		C13-22'33'44'5-HeptaCB-(170)	2013/12/04	95	%	30 - 140	
		C13-22'33'455'66'-NonaCB-(208)	2013/12/04	93	%	30 - 140	
	Method Blank	C13-22'33'55'66'-OctaCB-(202)	2013/12/04	88	%	30 - 140	
		C13-22'33'55'6-HeptaCB-(178)	2013/12/04	97	%	40 - 125	
		C13-22'344'55'-HeptaCB-(180)	2013/12/04	97	%	30 - 140	
		C13-22'34'566'-HeptaCB-(188)	2013/12/04	80	%	30 - 140	
		C13-22'44'66'-HexaCB-(155)	2013/12/04	67	%	30 - 140	
		C13-22'466'-PentaCB-(104)	2013/12/04	52	%	30 - 140	
		C13-22'66'-TetraCB-(54)	2013/12/04	39	%	30 - 140	
		C13-22'6-TriCB-(19)	2013/12/04	32	%	30 - 140	
		C13-22'-DiCB-(4)	2013/12/04	20 (3)	%	30 - 140	
		C13-233'44'55'6-OctaCB-(205)	2013/12/04	94	%	30 - 140	
		C13-233'44'55'-HeptaCB-(189)	2013/12/04	100	%	30 - 140	
		C13-233'44'-PentaCB-(105)	2013/12/04	95	%	30 - 140	
		C13-233'55'-PentaCB-(111)	2013/12/04	82	%	40 - 125	
		C13-23'44'55'-HexaCB-(167)	2013/12/04	92	%	30 - 140	
		C13-2344'5-PentaCB-(114)	2013/12/04	88	%	30 - 140	
		C13-23'44'5-PentaCB-(118)	2013/12/04	92	%	30 - 140	
		C13-2'344'5-PentaCB-(123)	2013/12/04	91	%	30 - 140	
		C13-2-MonoCB-(1)	2013/12/04	19	%	15 - 140	
		C13-33'44'55'-HexaCB-(169)	2013/12/04	60	%	30 - 140	
		C13-33'44'5-PentaCB-(126)	2013/12/04	93	%	30 - 140	
		C13-33'44'-TetraCB-(77)	2013/12/04	100	%	30 - 140	
		C13-344'5-TetraCB-(81)	2013/12/04	97	%	30 - 140	
		C13-344'-TriCB-(37)	2013/12/04	73	%	30 - 140	
		C13-44'-DiCB-(15)	2013/12/04	48	%	30 - 140	
		C13-4-MonoCB-(3)	2013/12/04	22	%	15 - 140	
		C13-DecaCB-(209)	2013/12/04	83	%	30 - 140	
		C13-HexaCB-(156)+(157)	2013/12/04	92	%	30 - 140	
		2-MonoCB-(1)	2013/12/04	0.021 U, EDL=0.021		ng/L	
		3-MonoCB-(2)	2013/12/04	0.018 U, EDL=0.018		ng/L	
		4-MonoCB-(3)	2013/12/04	0.020 U, EDL=0.020		ng/L	
		22'-DiCB-(4)	2013/12/04	0.025 U, EDL=0.025		ng/L	
		2,3-DiCB-(5)	2013/12/04	0.020 U, EDL=0.020		ng/L	
		2,3'-DiCB-(6)	2013/12/04	0.018 U, EDL=0.018		ng/L	
		2,4-DiCB-(7)	2013/12/04	0.018 U, EDL=0.018		ng/L	
		2,4'-DiCB-(8)	2013/12/04	0.016 U, EDL=0.016		ng/L	
		2,5-DiCB-(9)	2013/12/04	0.017 U, EDL=0.017		ng/L	
		2,6-DiCB-(10)	2013/12/04	0.020 U, EDL=0.020		ng/L	
		3,3'-DiCB-(11)	2013/12/04	0.058 U, EDL=0.058 (1)		ng/L	

Apex Laboratories
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Quality Assurance Report (Continued)

Maxxam Job Number: GB3K2315

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3445740	CXU	Method Blank	DiCB-(12)+(13)	2013/12/04	0.018 U, EDL=0.018	ng/L	
			3,5-DiCB-(14)	2013/12/04	0.017 U, EDL=0.017	ng/L	
			4,4'-DiCB-(15)	2013/12/04	0.030 U, EDL=0.030	ng/L	
			22'3-TriCB-(16)	2013/12/04	0.051 U, EDL=0.051	ng/L	
			22'4-TriCB-(17)	2013/12/04	0.045 U, EDL=0.045	ng/L	
			TriCB-(18)+(30)	2013/12/04	0.035 U, EDL=0.035	ng/L	
			22'6-TriCB-(19)	2013/12/04	0.040 U, EDL=0.040	ng/L	
			TriCB-(20) + (28)	2013/12/04	0.019 U, EDL=0.019	ng/L	
			TriCB-(21)+(33)	2013/12/04	0.020 U, EDL=0.020	ng/L	
			234'-TriCB-(22)	2013/12/04	0.020 U, EDL=0.020	ng/L	
			235-TriCB-(23)	2013/12/04	0.020 U, EDL=0.020	ng/L	
			236-TriCB-(24)	2013/12/04	0.032 U, EDL=0.032	ng/L	
			23'4-TriCB-(25)	2013/12/04	0.020 U, EDL=0.020	ng/L	
			TriCB-(26)+(29)	2013/12/04	0.019 U, EDL=0.019	ng/L	
			23'6-TriCB-(27)	2013/12/04	0.030 U, EDL=0.030	ng/L	
			24'5-TriCB-(31)	2013/12/04	0.018 U, EDL=0.018	ng/L	
			24'6-TriCB-(32)	2013/12/04	0.028 U, EDL=0.028	ng/L	
			23'5'-TriCB-(34)	2013/12/04	0.020 U, EDL=0.020	ng/L	
			33'4-TriCB-(35)	2013/12/04	0.019 U, EDL=0.019	ng/L	
			33'5-TriCB-(36)	2013/12/04	0.016 U, EDL=0.016	ng/L	
			344'-TriCB-(37)	2013/12/04	0.023 U, EDL=0.023	ng/L	
			345-TriCB-(38)	2013/12/04	0.019 U, EDL=0.019	ng/L	
			34'5-TriCB-(39)	2013/12/04	0.017 U, EDL=0.017	ng/L	
			TetraCB-(40)+(41)+(71)	2013/12/04	0.022 U, EDL=0.022	ng/L	
			22'34'-TetraCB-(42)	2013/12/04	0.026 U, EDL=0.026	ng/L	
			22'35'-TetraCB-(43)	2013/12/04	0.036 U, EDL=0.036	ng/L	
			TetraCB-(44)+(47)+(65)	2013/12/04	0.022 U, EDL=0.022	ng/L	
			TetraCB-(45)+(51)	2013/12/04	0.022 U, EDL=0.022	ng/L	
			22'36'-TetraCB-(46)	2013/12/04	0.027 U, EDL=0.027	ng/L	
			22'45-TetraCB-(48)	2013/12/04	0.022 U, EDL=0.022	ng/L	
			TetraCB-(49)+TetraCB-(69)	2013/12/04	0.020 U, EDL=0.020	ng/L	
			TetraCB-(50)+(53)	2013/12/04	0.022 U, EDL=0.022	ng/L	
			22'55'-TetraCB-(52)	2013/12/04	0.020 U, EDL=0.020	ng/L	
			22'66'-TetraCB-(54)	2013/12/04	0.026 U, EDL=0.026	ng/L	
			233'4-TetraCB-(55)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			233'4'-Tetra CB(56)	2013/12/04	0.014 U, EDL=0.014	ng/L	
			233'5-TetraCB-(57)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			233'5'-TetraCB-(58)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			TetraCB-(59)+(62)+(75)	2013/12/04	0.017 U, EDL=0.017	ng/L	
			2344'-TetraCB -(60)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			TetraCB-(61)+(70)+(74)+(76)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			234'5-TetraCB-(63)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			234'6-TetraCB-(64)	2013/12/04	0.019 U, EDL=0.019	ng/L	
			23'44'-TetraCB-(66)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			23'45-TetraCB-(67)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			23'45'-TetraCB-(68)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			23'55'-TetraCB-(72)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			23'5'6-TetraCB-(73)	2013/12/04	0.015 U, EDL=0.015	ng/L	
			33'44'-TetraCB-(77)	2013/12/04	0.015 U, EDL=0.015	ng/L	
			33'45-TetraCB-(78)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			33'45'-TetraCB(79)	2013/12/04	0.011 U, EDL=0.011	ng/L	
			33'55'-TetraCB-(80)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			344'5-TetraCB-(81)	2013/12/04	0.016 U, EDL=0.016	ng/L	
			22'33'4-PentaCB-(82)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			PentaCB-(83)+(99)	2013/12/04	0.010 U, EDL=0.010	ng/L	

Apex Laboratories
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 Client Project #: A3K0592
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Quality Assurance Report (Continued)

Maxxam Job Number: GB3K2315

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3445740	CXU	Method Blank	2013/12/04	0.012 U, EDL=0.012		ng/L	
		PentaCB-(85)+(116)+(117)	2013/12/04	0.0080 U, EDL=0.0080		ng/L	
		PentaCB-(86)(87)(97)(109)(119)(125)	2013/12/04	0.0088 U, EDL=0.0088		ng/L	
		PentaCB-(88)+(91)	2013/12/04	0.010 U, EDL=0.010		ng/L	
		22'346'-PentaCB-(89)	2013/12/04	0.011 U, EDL=0.011		ng/L	
		PentaCB-(90)+(101)+(113)	2013/12/04	0.0089 U, EDL=0.0089		ng/L	
		22'355'-PentaCB-(92)	2013/12/04	0.010 U, EDL=0.010		ng/L	
		PentaCB-(93)+(98)+(100)+(102)	2013/12/04	0.011 U, EDL=0.011		ng/L	
		22'356'-PentaCB-(94)	2013/12/04	0.011 U, EDL=0.011		ng/L	
		22'357'-PentaCB-(95)	2013/12/04	0.0099 U, EDL=0.0099		ng/L	
		22'366'-PentaCB-(96)	2013/12/04	0.0092 U, EDL=0.0092		ng/L	
		22'451'-PentaCB-(103)	2013/12/04	0.0090 U, EDL=0.0090		ng/L	
		22'466'-PentaCB-(104)	2013/12/04	0.0080 U, EDL=0.0080		ng/L	
		233'44'-PentaCB-(105)	2013/12/04	0.016 U, EDL=0.016		ng/L	
		233'45-PentaCB-(106)	2013/12/04	0.014 U, EDL=0.014		ng/L	
		233'45'-PentaCB-(107)	2013/12/04	0.013 U, EDL=0.013		ng/L	
		PentaCB-(108)+(124)	2013/12/04	0.014 U, EDL=0.014		ng/L	
		PentaCB-(110)+(115)	2013/12/04	0.0088 U, EDL=0.0088		ng/L	
		233'55'-PentaCB-(111)	2013/12/04	0.0072 U, EDL=0.0072		ng/L	
		233'56-PentaCB-(112)	2013/12/04	0.0078 U, EDL=0.0078		ng/L	
		2344'5-PentaCB-(114)	2013/12/04	0.015 U, EDL=0.015		ng/L	
		23'44'5-PentaCB-(118)	2013/12/04	0.016 U, EDL=0.016		ng/L	
		23'455'-PentaCB-(120)	2013/12/04	0.0071 U, EDL=0.0071		ng/L	
		23'451'-PentaCB-(121)	2013/12/04	0.0074 U, EDL=0.0074		ng/L	
		233'45'-PentaCB-(122)	2013/12/04	0.015 U, EDL=0.015		ng/L	
		23'44'5'-PentaCB-(123)	2013/12/04	0.017 U, EDL=0.017		ng/L	
		33'44'5-PentaCB-(126)	2013/12/04	0.015 U, EDL=0.015		ng/L	
		33'455'-PentaCB-(127)	2013/12/04	0.014 U, EDL=0.014		ng/L	
		HexaCB-(128)+(166)	2013/12/04	0.029 U, EDL=0.029		ng/L	
		HexaCB-(129)+(138)+(163)	2013/12/04	0.033 U, EDL=0.033		ng/L	
		22'33'45'-HexaCB-(130)	2013/12/04	0.037 U, EDL=0.037		ng/L	
		22'33'46-HexaCB-(131)	2013/12/04	0.042 U, EDL=0.042		ng/L	
		22'33'46'-HexaCB-(132)	2013/12/04	0.036 U, EDL=0.036		ng/L	
		22'33'55'-HexaCB-(133)	2013/12/04	0.034 U, EDL=0.034		ng/L	
		HexaCB-(134)+(143)	2013/12/04	0.038 U, EDL=0.038		ng/L	
		HexaCB-(135)+(151)	2013/12/04	0.013 U, EDL=0.013		ng/L	
		22'33'66'-HexaCB-(136)	2013/12/04	0.0098 U, EDL=0.0098		ng/L	
		22'344'5-HexaCB-(137)	2013/12/04	0.036 U, EDL=0.036		ng/L	
		HexaCB-(139)+(140)	2013/12/04	0.031 U, EDL=0.031		ng/L	
		22'3455'-HexaCB-(141)	2013/12/04	0.034 U, EDL=0.034		ng/L	
		22'3456-HexaCB-(142)	2013/12/04	0.037 U, EDL=0.037		ng/L	
		22'345'6-HexaCB-(144)	2013/12/04	0.013 U, EDL=0.013		ng/L	
		22'3466'-HexaCB-(145)	2013/12/04	0.010 U, EDL=0.010		ng/L	
		22'34'55'-HexaCB-(146)	2013/12/04	0.031 U, EDL=0.031		ng/L	
		HexaCB-(147)+(149)	2013/12/04	0.031 U, EDL=0.031		ng/L	
		22'34'56'-HexaCB-(148)	2013/12/04	0.013 U, EDL=0.013		ng/L	
		22'34'66'-HexaCB-(150)	2013/12/04	0.0092 U, EDL=0.0092		ng/L	
		22'3566'-HexaCB-(152)	2013/12/04	0.010 U, EDL=0.010		ng/L	
		HexaCB-(153)+(168)	2013/12/04	0.026 U, EDL=0.026		ng/L	
		22'44'56'-HexaCB-(154)	2013/12/04	0.012 U, EDL=0.012		ng/L	
		22'44'66'-HexaCB-(155)	2013/12/04	0.010 U, EDL=0.010		ng/L	
		HexaCB-(156)+(157)	2013/12/04	0.012 U, EDL=0.012		ng/L	
		233'44'6-HexaCB-(158)	2013/12/04	0.024 U, EDL=0.024		ng/L	
		233'455'-HexaCB-(159)	2013/12/04	0.011 U, EDL=0.011		ng/L	
		233'456-HexaCB-(160)	2013/12/04	0.025 U, EDL=0.025		ng/L	

Apex Laboratories
 Attention: Philip Nerenberg
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 P.O. #:
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Quality Assurance Report (Continued)

Maxxam Job Number: GB3K2315

QA/QC		Date Analyzed					
Batch		yyyy/mm/dd	Value	%Recovery	Units	QC Limits	
Num	Init	QC Type	Parameter				
3445740	CXU	Method Blank	233'45'6-HexaCB-(161)	2013/12/04	0.025 U, EDL=0.025	ng/L	
			233'4'55'-HexaCB-(162)	2013/12/04	0.011 U, EDL=0.011	ng/L	
			233'4'5'6-HexaCB-(164)	2013/12/04	0.024 U, EDL=0.024	ng/L	
			233'55'6-HexaCB-(165)	2013/12/04	0.027 U, EDL=0.027	ng/L	
			23'44'55'-HexaCB-(167)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			33'44'55'-HexaCB-(169)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			22'33'44'5-HeptaCB-(170)	2013/12/04	0.010 U, EDL=0.010	ng/L	
			HeptaCB-(171)+(173)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			22'33'455'-HeptaCB-(172)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			22'33'456'-HeptaCB-(174)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			22'33'45'6-HeptaCB-(175)	2013/12/04	0.014 U, EDL=0.014	ng/L	
			22'33'466'-HeptaCB-(176)	2013/12/04	0.010 U, EDL=0.010	ng/L	
			22'33'45'6-HeptaCB-(177)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			22'33'55'6-HeptaCB-(178)	2013/12/04	0.014 U, EDL=0.014	ng/L	
			22'33'566'-HeptaCB-(179)	2013/12/04	0.010 U, EDL=0.010	ng/L	
			HeptaCB-(180)+(193)	2013/12/04	0.0099 U, EDL=0.0099	ng/L	
			22'344'56-HeptaCB-(181)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			22'344'56'-HeptaCB-(182)	2013/12/04	0.014 U, EDL=0.014	ng/L	
			22'344'5'6-HeptaCB-(183)	2013/12/04	0.0097 U, EDL=0.0097	ng/L	
			22'344'66'-HeptaCB-(184)	2013/12/04	0.0096 U, EDL=0.0096	ng/L	
			22'3455'6-HeptaCB-(185)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			22'34566'-HeptaCB-(186)	2013/12/04	0.010 U, EDL=0.010	ng/L	
			22'34'55'6-HeptaCB-(187)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			22'34'566'-HeptaCB-(188)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			233'44'55'-HeptaCB-(189)	2013/12/04	0.018 U, EDL=0.018	ng/L	
			233'44'56-HeptaCB-(190)	2013/12/04	0.0098 U, EDL=0.0098	ng/L	
			233'44'5'6-HeptaCB-(191)	2013/12/04	0.0091 U, EDL=0.0091	ng/L	
			233'455'6-HeptaCB-(192)	2013/12/04	0.0096 U, EDL=0.0096	ng/L	
			22'33'44'55'-OctaCB-(194)	2013/12/04	0.014 U, EDL=0.014	ng/L	
			22'33'44'56-OctaCB-(195)	2013/12/04	0.014 U, EDL=0.014	ng/L	
			22'33'44'56'-OctaCB-(196)	2013/12/04	0.018 U, EDL=0.018	ng/L	
			22'33'44'66'OctaCB-(197)	2013/12/04	0.013 U, EDL=0.013	ng/L	
			OctaCB-(198)+(199)	2013/12/04	0.018 U, EDL=0.018	ng/L	
			22'33'4566-OctaCB-(200)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			22'33'45'66'-OctaCB-(201)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			22'33'55'66'-OctaCB-(202)	2013/12/04	0.016 U, EDL=0.016	ng/L	
			22'344'55'6-OctaCB-(203)	2013/12/04	0.017 U, EDL=0.017	ng/L	
			22'344'566'-OctaCB-(204)	2013/12/04	0.012 U, EDL=0.012	ng/L	
			233'44'55'6-OctaCB-(205)	2013/12/04	0.011 U, EDL=0.011	ng/L	
			22'33'44'55'6-NonaCB-(206)	2013/12/04	0.022 U, EDL=0.022	ng/L	
			22'33'44'566'-NonaCB-(207)	2013/12/04	0.016 U, EDL=0.016	ng/L	
			22'33'455'66'-NonaCB-(208)	2013/12/04	0.020 U, EDL=0.020	ng/L	
			DecaCB-(209)	2013/12/04	0.019 U, EDL=0.019	ng/L	
			Monochlorobiphenyl	2013/12/04	0.021 U, EDL=0.021	ng/L	
			Dichlorobiphenyl	2013/12/04	0.030 U, EDL=0.030	ng/L	
			Trichlorobiphenyl	2013/12/04	0.051 U, EDL=0.051	ng/L	
			Tetrachlorobiphenyl	2013/12/04	0.036 U, EDL=0.036	ng/L	
			Pentachlorobiphenyl	2013/12/04	0.017 U, EDL=0.017	ng/L	
			Hexachlorobiphenyl	2013/12/04	0.042 U, EDL=0.042	ng/L	
			Heptachlorobiphenyl	2013/12/04	0.018 U, EDL=0.018	ng/L	
			Octachlorobiphenyl	2013/12/04	0.018 U, EDL=0.018	ng/L	
			Nonachlorobiphenyl	2013/12/04	0.022 U, EDL=0.022	ng/L	
			Decachlorobiphenyl	2013/12/04	0.0030 U, EDL=0.0030	ng/L	
			Total PCB	2013/12/04	0	ng/L	

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method

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P.O. #:
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB3K2315

accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(2) Result is within method acceptable criteria(25-150% recovery).

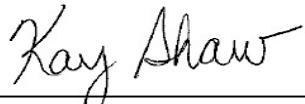
(3) Result is lower than method acceptable criteria(25-150% recovery) in blank,

Minimal impact on data

Validation Signature Page

Maxxam Job #: B3K2315

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Kay Shaw, C. Chem, Sr Scientific Specialist, HRMS Services

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Friday, November 22, 2013

Ross Rieke
Bridgewater Group
4500 SW Kruse Way; Suite 110
Lake Oswego, OR 97035

RE: Schnitzer-Burgard / 8001-20

Enclosed are the results of analyses for work order A3K0014, which was received by the laboratory on 10/30/2013 at 10:50:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer , please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

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Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

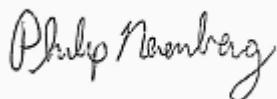
ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B22-SWSP-MH-020131029	A3K0014-01	Soil	10/29/13 11:00	10/30/13 10:50

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503-718-0333 Fax

Bridgewater Group
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Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

ANALYTICAL SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx

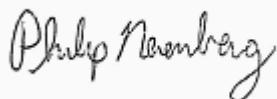
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SWSP-MH-020131029 (A3K0014-01RE1)			Matrix: Soil		Batch: 3110125			
Diesel	ND	105	210	mg/kg dry	10	11/06/13 11:59	NWTPH-Dx	
Oil	868	210	420	"	"	"	"	<i>S-05</i>

Surrogate: o-Terphenyl (Surr)

Recovery: 90 % Limits: 50-150 %

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503-718-0333 Fax

Bridgewater Group

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Lake Oswego, OR 97035

Project: Schnitzer-Burgard

Project Number: 8001-20

Project Manager: Ross Rieke

Reported:

11/22/13 10:05

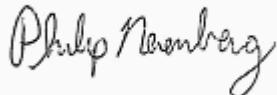
ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SWSP-MH-020131029 (A3K0014-01)			Matrix: Soil		Batch: 3110047			V-16
Gasoline Range Organics	ND	3.04	6.08	mg/kg dry	50	11/03/13 18:18	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromo fluoro benzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>			<i>94 %</i>	<i>Limits: 50-150 %</i>	"	"	"	

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503-718-0333 Fax

Bridgewater Group

4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard

Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls -- EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SWSP-MH-020131029 (A3K0014-01)			Matrix: Soil		Batch: 3110375			C-07
Aroclor 1016	ND	5.27	10.5	ug/kg dry	1	11/13/13 20:09	EPA 8082A	
Aroclor 1221	ND	5.27	10.5	"	"	"	"	
Aroclor 1232	ND	5.27	10.5	"	"	"	"	
Aroclor 1242	ND	5.27	10.5	"	"	"	"	
Aroclor 1248	ND	5.27	10.5	"	"	"	"	
Aroclor 1254	10.9	5.27	10.5	"	"	"	"	
Aroclor 1260	9.40	5.27	10.5	"	"	"	"	J

Surrogate: Decachlorobiphenyl (Surr)

Recovery: 95 %

Limits: 60-125 %

"

"

"

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 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SWSP-MH-020131029 (A3K0014-01RE2)			Matrix: Soil		Batch: 3110347			C-05, R-04
Aldrin	ND	1.97	3.93	ug/kg dry	2	11/19/13 11:40	EPA 8081B	
alpha-BHC	ND	1.97	3.93	"	"	"	"	
beta-BHC	ND	1.97	3.93	"	"	"	"	
delta-BHC	ND	1.97	3.93	"	"	"	"	
gamma-BHC (Lindane)	ND	1.97	3.93	"	"	"	"	
cis-Chlordane	ND	1.97	3.93	"	"	"	"	
trans-Chlordane	ND	1.97	3.93	"	"	"	"	
4,4'-DDD	ND	1.97	3.93	"	"	"	"	
4,4'-DDE	ND	1.97	3.93	"	"	"	"	
4,4'-DDT	ND	5.90	5.90	"	"	"	"	R-02
Dieldrin	ND	1.97	3.93	"	"	"	"	
Endosulfan I	ND	1.97	3.93	"	"	"	"	
Endosulfan II	ND	1.97	3.93	"	"	"	"	
Endosulfan sulfate	ND	1.97	3.93	"	"	"	"	
Endrin	ND	1.97	3.93	"	"	"	"	
Endrin Aldehyde	ND	1.97	3.93	"	"	"	"	
Endrin ketone	ND	1.97	3.93	"	"	"	"	
Heptachlor	ND	1.97	3.93	"	"	"	"	
Heptachlor epoxide	ND	1.97	3.93	"	"	"	"	
Methoxychlor	ND	5.90	11.8	"	"	"	"	
Chlordane (Technical)	ND	59.0	118	"	"	"	"	
Toxaphene (Total)	ND	59.0	118	"	"	"	"	
cis-Nonachlor	ND	1.97	3.93	"	"	"	"	
2,4'-DDD	ND	1.97	3.93	"	"	"	"	
2,4'-DDE	ND	1.97	3.93	"	"	"	"	
2,4'-DDT	ND	1.97	3.93	"	"	"	"	
Hexachlorobenzene	ND	4.92	9.83	"	"	"	"	
Hexachlorobutadiene	ND	1.97	3.93	"	"	"	"	
Mirex	ND	1.97	3.93	"	"	"	"	
Oxychlordane	ND	1.97	3.93	"	"	"	"	
trans-Nonachlor	ND	1.97	3.93	"	"	"	"	

Surrogate: 2,4,5,6-TCMX (Surr)
 Decachlorobiphenyl (Surr)

Recovery: 93 % Limits: 50-125 % "
 86 % Limits: 55-130 % "

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Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SWSP-MH-020131029 (A3K0014-01)			Matrix: Soil		Batch: 3110193			
Acenaphthene	ND	206	412	ug/kg dry	40	11/08/13 23:11	EPA 8270D P/P	
Acenaphthylene	ND	206	412	"	"	"	"	
Anthracene	ND	206	412	"	"	"	"	
Benz(a)anthracene	425	206	412	"	"	"	"	
Benzo(a)pyrene	682	309	618	"	"	"	"	
Benzo(b)fluoranthene	690	309	618	"	"	"	"	
Benzo(k)fluoranthene	394	309	618	"	"	"	"	J
Benzo(g,h,i)perylene	646	206	412	"	"	"	"	
Chrysene	583	206	412	"	"	"	"	
Dibenz(a,h)anthracene	ND	206	412	"	"	"	"	
Fluoranthene	965	206	412	"	"	"	"	
Fluorene	ND	206	412	"	"	"	"	
Indeno(1,2,3-cd)pyrene	393	206	412	"	"	"	"	J
1-Methylnaphthalene	ND	412	823	"	"	"	"	
2-Methylnaphthalene	ND	412	823	"	"	"	"	
Naphthalene	ND	412	823	"	"	"	"	
Phenanthrene	505	206	412	"	"	"	"	
Pyrene	1160	206	412	"	"	"	"	
Carbazole	ND	309	618	"	"	"	"	
Dibenzofuran	ND	206	412	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	2060	4120	"	"	"	"	
Butyl benzyl phthalate	ND	2060	4120	"	"	"	"	
Diethylphthalate	ND	2060	4120	"	"	"	"	
Dimethylphthalate	ND	2060	4120	"	"	"	"	
Di-n-butylphthalate	ND	2060	4120	"	"	"	"	
Di-n-octyl phthalate	ND	4120	8230	"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>			<i>Recovery: 85 %</i>	<i>Limits: 35-120 %</i>	"	"	"	<i>S-05</i>
<i>2-Fluorobiphenyl (Surr)</i>			<i>69 %</i>	<i>Limits: 45-120 %</i>	"	"	"	<i>S-05</i>
<i>p-Terphenyl-d14 (Surr)</i>			<i>80 %</i>	<i>Limits: 30-125 %</i>	"	"	"	<i>S-05</i>

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SWSP-MH-020131029 (A3K0014-01)		Matrix: Soil						
Batch: 3110205								
Aluminum	4730	29.1	58.1	mg/kg dry	10	11/07/13 16:24	EPA 6020A	"
Antimony	ND	0.581	1.16	"	"	"	"	"
Arsenic	1.63	0.291	1.16	"	"	"	"	"
Cadmium	0.325	0.116	0.232	"	"	"	"	"
Chromium	9.26	0.581	1.16	"	"	"	"	"
Copper	26.2	0.581	1.16	"	"	"	"	"
Lead	22.1	0.116	0.232	"	"	"	"	"
Manganese	204	0.581	1.16	"	"	"	"	"
Mercury	ND	0.0465	0.0930	"	"	"	"	"
Nickel	12.2	0.581	1.16	"	"	"	"	"
Silver	ND	0.116	0.232	"	"	"	"	"
Zinc	154	2.32	4.65	"	"	"	"	"

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503-718-0333 Fax

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4500 SW Kruse Way, Suite 110
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Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

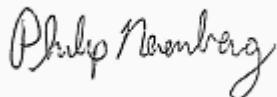
ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SWSP-MH-020131029 (A3K0014-01)			Matrix: Soil					
Batch: 3110120								
Total Organic Carbon	3800	---	200	mg/kg	1	11/11/13 17:30	SM 5310B MOD	

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503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

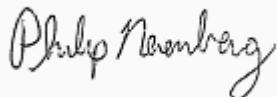
ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B22-SWSP-MH-020131029 (A3K0014-01)				Matrix: Soil		Batch: 3110090		
% Solids	82.9	---	1.00	% by Weight	1	11/05/13 11:12	EPA 8000C	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
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Reported:
11/22/13 10:05

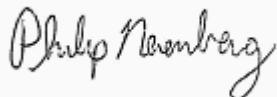
QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110125 - EPA 3546 (Fuels)												
Blank (3110125-BLK1)												
Prepared: 11/05/13 15:37 Analyzed: 11/05/13 23:21												
NWTPH-Dx												
Diesel	ND	7.14	25.0	mg/kg wet	1	---	---	---	---	---	---	---
Oil	ND	14.3	50.0	"	"	---	---	---	---	---	---	---
<i>Surr: o-Terphenyl (Surr)</i> Recovery: 85 % Limits: 50-150 % Dilution: Ix												
LCS (3110125-BS1)												
Prepared: 11/05/13 15:37 Analyzed: 11/05/13 23:45												
NWTPH-Dx												
Diesel	117	10.0	25.0	mg/kg wet	1	125	---	94	76-115%	---	---	---
<i>Surr: o-Terphenyl (Surr)</i> Recovery: 89 % Limits: 50-150 % Dilution: Ix												

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110047 - EPA 5035A												
Soil												
Blank (3110047-BLK1)												
Prepared: 11/03/13 09:00 Analyzed: 11/03/13 12:37												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	1.67	3.33	mg/kg wet	50	---	---	---	---	---	---	---
Surr: 4-Bromofluorobenzene (Sur)												
Recovery: 91 % Limits: 50-150 % Dilution: 1x												
1,4-Difluorobenzene (Sur) 91 % 50-150 % "												
LCS (3110047-BS2)												
Prepared: 11/03/13 09:00 Analyzed: 11/03/13 12:09												
NWTPH-Gx (MS)												
Gasoline Range Organics	20.4	2.50	5.00	mg/kg wet	50	25.0	---	82	70-130%	---	---	---
Surr: 4-Bromofluorobenzene (Sur)												
Recovery: 91 % Limits: 50-150 % Dilution: 1x												
1,4-Difluorobenzene (Sur) 90 % 50-150 % "												

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

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 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls -- EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110375 - EPA 3546												
Sediment												
Blank (3110375-BLK1)												
Prepared: 11/13/13 09:57 Analyzed: 11/13/13 17:45												
EPA 8082A												
Aroclor 1016	ND	1.67	3.33	ug/kg wet	1	---	---	---	---	---	---	---
Aroclor 1221	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Aroclor 1232	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Aroclor 1242	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Aroclor 1248	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Aroclor 1254	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Aroclor 1260	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
<i>Surr: Decachlorobiphenyl (Surr)</i>												
Recovery: 102 % Limits: 60-125 % Dilution: 1x												
LCS (3110375-BS1)												
Prepared: 11/13/13 09:57 Analyzed: 11/13/13 18:03												
EPA 8082A												
Aroclor 1016	218	2.00	4.00	ug/kg wet	1	250	---	87	40-140%	---	---	---
Aroclor 1260	206	2.00	4.00	"	"	"	---	83	60-130%	---	---	---
<i>Surr: Decachlorobiphenyl (Surr)</i>												
Recovery: 104 % Limits: 60-125 % Dilution: 1x												
Matrix Spike (3110375-MS1)												
Prepared: 11/13/13 09:57 Analyzed: 11/13/13 20:46												
QC Source Sample: B22-SWSP-MH-020131029 (A3K0014-01)												
EPA 8082A												
Aroclor 1016	231	5.23	10.5	ug/kg dry	1	261	ND	88	40-140%	---	---	---
Aroclor 1260	210	5.23	10.5	"	"	"	9.40	77	60-130%	---	---	---
<i>Surr: Decachlorobiphenyl (Surr)</i>												
Recovery: 92 % Limits: 60-125 % Dilution: 1x												

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110347 - EPA 3546/3640A (GPC)												
Soil												
Blank (3110347-BLK1)							Prepared: 11/12/13 14:52	Analyzed: 11/13/13 10:56				C-05
EPA 8081B												
Aldrin	ND	0.312	0.625	ug/kg wet	1	---	---	---	---	---	---	---
alpha-BHC	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
beta-BHC	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
delta-BHC	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
gamma-BHC (Lindane)	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
cis-Chlordane	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
trans-Chlordane	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
4,4'-DDD	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
4,4'-DDE	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
4,4'-DDT	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Dieldrin	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Endosulfan I	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Endosulfan II	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Endosulfan sulfate	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Endrin	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Endrin Aldehyde	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Endrin ketone	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Heptachlor	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Heptachlor epoxide	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Methoxychlor	ND	0.938	1.88	"	"	---	---	---	---	---	---	---
Chlordane (Technical)	ND	9.38	18.8	"	"	---	---	---	---	---	---	---
Toxaphene (Total)	ND	9.38	18.8	"	"	---	---	---	---	---	---	---
cis-Nonachlor	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
2,4'-DDD	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
2,4'-DDE	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
2,4'-DDT	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Hexachlorobenzene	ND	0.781	1.56	"	"	---	---	---	---	---	---	---
Hexachlorobutadiene	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Mirex	ND	0.312	0.625	"	"	---	---	---	---	---	---	---
Oxychlordane	ND	0.312	0.625	"	"	---	---	---	---	---	---	---

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110347 - EPA 3546/3640A (GPC)												
Soil												
Blank (3110347-BLK1)												
trans-Nonachlor	ND	0.312	0.625	ug/kg wet	"	---	---	---	---	---	---	C-05
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 75 %</i>	<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>						
<i>Decachlorobiphenyl (Surr)</i>			<i>95 %</i>	<i>55-130 %</i>		"						
LCS (3110347-BS1)												
Prepared: 11/12/13 14:52 Analyzed: 11/13/13 11:13												
EPA 8081B												
Aldrin	9.90	0.333	0.667	ug/kg wet	1	16.7	---	59	45-140%	---	---	
alpha-BHC	9.99	0.333	0.667	"	"	"	---	60	60-125%	---	---	
beta-BHC	10.6	0.333	0.667	"	"	"	---	63	"	---	---	
delta-BHC	12.2	0.333	0.667	"	"	"	---	73	55-130%	---	---	
gamma-BHC (Lindane)	10.3	0.333	0.667	"	"	"	---	62	60-125%	---	---	
cis-Chlordane	12.0	0.333	0.667	"	"	"	---	72	60-120%	---	---	
trans-Chlordane	12.1	0.333	0.667	"	"	"	---	73	65-125%	---	---	
4,4'-DDD	14.8	0.333	0.667	"	"	"	---	89	30-135%	---	---	
4,4'-DDE	13.2	0.333	0.667	"	"	"	---	79	70-125%	---	---	
4,4'-DDT	17.2	0.333	0.667	"	"	"	---	103	45-140%	---	---	
Dieldrin	13.9	0.333	0.667	"	"	"	---	84	65-125%	---	---	
Endosulfan I	12.6	0.333	0.667	"	"	"	---	76	15-135%	---	---	
Endosulfan II	15.0	0.333	0.667	"	"	"	---	90	35-140%	---	---	
Endosulfan sulfate	15.3	0.333	0.667	"	"	"	---	92	60-135%	---	---	
Endrin	15.2	0.333	0.667	"	"	"	---	91	"	---	---	
Endrin Aldehyde	12.6	0.333	0.667	"	"	"	---	76	30-145%	---	---	
Endrin ketone	14.4	0.333	0.667	"	"	"	---	86	65-135%	---	---	
Heptachlor	10.6	0.333	0.667	"	"	"	---	63	50-140%	---	---	
Heptachlor epoxide	11.7	0.333	0.667	"	"	"	---	70	65-130%	---	---	
Methoxychlor	18.2	1.00	2.00	"	"	"	---	109	55-145%	---	---	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 58 %</i>	<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>						
<i>Decachlorobiphenyl (Surr)</i>			<i>96 %</i>	<i>55-130 %</i>		"						
LCS (3110347-BS2)												
Prepared: 11/12/13 14:52 Analyzed: 11/13/13 11:31												
EPA 8081B												
cis-Nonachlor	16.3	0.333	0.667	ug/kg wet	1	16.7	---	98	50-150%	---	---	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group
4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110347 - EPA 3546/3640A (GPC)												
Soil												
LCS (3110347-BS2)												
2,4'-DDD	16.0	0.333	0.667	ug/kg wet	"	"	---	96	30-135%	---	---	
2,4'-DDE	15.9	0.333	0.667	"	"	"	---	95	50-140%	---	---	
2,4'-DDT	18.5	0.333	0.667	"	"	"	---	111	45-140%	---	---	
Hexachlorobenzene	13.7	0.833	1.67	"	"	"	---	82	50-150%	---	---	
Hexachlorobutadiene	12.5	0.333	0.667	"	"	"	---	75	"	---	---	
Mirex	15.2	0.333	0.667	"	"	"	---	91	"	---	---	
Oxychlordane	15.5	0.333	0.667	"	"	"	---	93	"	---	---	
trans-Nonachlor	15.4	0.333	0.667	"	"	"	---	93	"	---	---	

Surr: 2,4,5,6-TCMX (Surr)

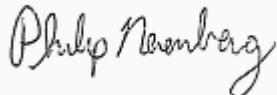
Recovery: 82 % Limits: 50-125 % Dilution: 1x

Decachlorobiphenyl (Surr)

102 % 55-130 % "

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
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 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110193 - EPA 3546												
Soil												
Blank (3110193-BLK1)												
Prepared: 11/07/13 08:43 Analyzed: 11/07/13 20:10												
EPA 8270D P/P												
Acenaphthene	ND	1.67	3.33	ug/kg wet	1	---	---	---	---	---	---	---
Acenaphthylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Benz(a)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Benzo(a)pyrene	ND	2.50	5.00	"	"	---	---	---	---	---	---	---
Benzo(b)fluoranthene	ND	2.50	5.00	"	"	---	---	---	---	---	---	---
Benzo(k)fluoranthene	ND	2.50	5.00	"	"	---	---	---	---	---	---	---
Benzo(b+k)fluoranthene(s)	ND	5.00	10.0	"	"	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Chrysene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Fluorene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
1-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	---
2-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	---
Naphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	---
Phenanthrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Carbazole	ND	2.50	5.00	"	"	---	---	---	---	---	---	---
Dibenzofuran	ND	1.67	3.33	"	"	---	---	---	---	---	---	---
Bis(2-ethylhexyl)phthalate	ND	16.7	33.3	"	"	---	---	---	---	---	---	---
Butyl benzyl phthalate	ND	16.7	33.3	"	"	---	---	---	---	---	---	---
Diethylphthalate	ND	16.7	33.3	"	"	---	---	---	---	---	---	---
Dimethylphthalate	ND	16.7	33.3	"	"	---	---	---	---	---	---	---
Di-n-butylphthalate	ND	16.7	33.3	"	"	---	---	---	---	---	---	---
Di-n-octyl phthalate	ND	33.3	66.7	"	"	---	---	---	---	---	---	---

Surr: Nitrobenzene-d5 (Surr)
2-Fluorobiphenyl (Surr)
p-Terphenyl-d14 (Surr)

Recovery: 89 % *Limits: 35-120 %* *Dilution: 1x*
83 % *45-120 %* *"*
91 % *30-125 %* *"*

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 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110193 - EPA 3546												
Soil												
LCS (3110193-BS1)												
Prepared: 11/07/13 08:43 Analyzed: 11/07/13 20:46												
EPA 8270D P/P												
Acenaphthene	802	2.00	4.00	ug/kg wet	1	800	---	100	45-120%	---	---	---
Acenaphthylene	804	2.00	4.00	"	"	"	---	101	"	---	---	---
Anthracene	817	2.00	4.00	"	"	"	---	102	55-120%	---	---	---
Benz(a)anthracene	872	2.00	4.00	"	"	"	---	109	50-120%	---	---	---
Benzo(a)pyrene	888	3.00	6.00	"	"	"	---	111	"	---	---	---
Benzo(b)fluoranthene	895	3.00	6.00	"	"	"	---	112	45-120%	---	---	---
Benzo(k)fluoranthene	840	3.00	6.00	"	"	"	---	105	45-125%	---	---	---
Benzo(b+k)fluoranthene(s)	1720	6.00	12.0	"	"	1600	---	108	"	---	---	---
Benzo(g,h,i)perylene	773	2.00	4.00	"	"	800	---	97	40-125%	---	---	---
Chrysene	832	2.00	4.00	"	"	"	---	104	55-120%	---	---	---
Dibenz(a,h)anthracene	818	2.00	4.00	"	"	"	---	102	40-125%	---	---	---
Fluoranthene	876	2.00	4.00	"	"	"	---	109	55-120%	---	---	---
Fluorene	810	2.00	4.00	"	"	"	---	101	50-120%	---	---	---
Indeno(1,2,3-cd)pyrene	814	2.00	4.00	"	"	"	---	102	40-120%	---	---	---
1-Methylnaphthalene	817	4.00	8.00	"	"	"	---	102	45-120%	---	---	---
2-Methylnaphthalene	842	4.00	8.00	"	"	"	---	105	"	---	---	---
Naphthalene	769	4.00	8.00	"	"	"	---	96	40-120%	---	---	---
Phenanthrene	784	2.00	4.00	"	"	"	---	98	50-120%	---	---	---
Pyrene	879	2.00	4.00	"	"	"	---	110	45-120%	---	---	---
Carbazole	825	3.00	6.00	"	"	"	---	103	"	---	---	---
Dibenzofuran	768	2.00	4.00	"	"	"	---	96	50-120%	---	---	---
Bis(2-ethylhexyl)phthalate	886	20.0	40.0	"	"	"	---	111	45-125%	---	---	---
Butyl benzyl phthalate	900	20.0	40.0	"	"	"	---	113	50-125%	---	---	---
Diethylphthalate	923	20.0	40.0	"	"	"	---	115	50-120%	---	---	---
Dimethylphthalate	828	20.0	40.0	"	"	"	---	103	"	---	---	---
Di-n-butylphthalate	905	20.0	40.0	"	"	"	---	113	55-120%	---	---	---
Di-n-octyl phthalate	994	40.0	80.0	"	"	"	---	124	40-130%	---	---	---

Surr: Nitrobenzene-d5 (Surr)
 2-Fluorobiphenyl (Surr)
 p-Terphenyl-d14 (Surr)

Recovery: 103 % Limits: 35-120 % Dilution: Ix
 94 % 45-120 % "
 92 % 30-125 % "

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

Bridgewater Group
 4500 SW Kruse Way, Suite 110
 Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**
 Project Number: 8001-20
 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110205 - EPA 3051A												
Soil												
Blank (3110205-BLK1)												
Prepared: 11/07/13 10:49 Analyzed: 11/07/13 17:27												
EPA 6020A												
Aluminum	ND	25.0	50.0	mg/kg wet	10	---	---	---	---	---	---	---
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
Arsenic	ND	0.250	1.00	"	"	---	---	---	---	---	---	---
Cadmium	ND	0.100	0.200	"	"	---	---	---	---	---	---	---
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	---
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	---
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	---
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	---
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	---
LCS (3110205-BS1)												
Prepared: 11/07/13 10:49 Analyzed: 11/07/13 15:26												
EPA 6020A												
Aluminum	5040	25.0	50.0	mg/kg wet	10	5000	---	101	80-120%	---	---	---
Antimony	26.1	0.500	1.00	"	"	25.0	---	104	"	---	---	---
Arsenic	53.3	0.250	1.00	"	"	50.0	---	107	"	---	---	---
Cadmium	53.1	0.100	0.200	"	"	"	---	106	"	---	---	---
Chromium	49.2	0.500	1.00	"	"	"	---	98	"	---	---	---
Copper	50.8	0.500	1.00	"	"	"	---	102	"	---	---	---
Lead	51.0	0.100	0.200	"	"	"	---	102	"	---	---	---
Manganese	52.6	0.500	1.00	"	"	"	---	105	"	---	---	---
Mercury	1.07	0.0400	0.0800	"	"	1.00	---	107	"	---	---	---
Nickel	49.3	0.500	1.00	"	"	50.0	---	99	"	---	---	---
Silver	25.5	0.100	0.200	"	"	25.0	---	102	"	---	---	---
LCS (3110205-BS2)												
Prepared: 11/07/13 10:49 Analyzed: 11/08/13 16:22												
EPA 6020A												
Zinc	55.5	2.00	4.00	mg/kg wet	10	50.0	---	111	80-120%	---	---	Q-16

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110205 - EPA 3051A												
Soil												
Post Spike (3110205-PS1)												
Aluminum	106000			ug/L	10	38500	63600	110	80-120%	---	---	
Lead	2470			"	"	1920	619	96	"	---	---	
Manganese	6750			"	"	"	4870	98	"	---	---	
Post Spike (3110205-PS2)												
Aluminum	99000			ug/L	10	38500	51300	124	80-120%	---	PS-02	
Manganese	5000			"	"	1920	3050	102	"	---	---	
Zinc	2540			"	"	"	382	112	"	---	---	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3110120 - Method Prep: Non-Aq												
Blank (3110120-BLK1)												
Prepared: 11/05/13 14:08 Analyzed: 11/08/13 17:00												
SM 5310B MOD												
Total Organic Carbon	ND	---	200	mg/kg	1	---	---	---	---	---	---	---
LCS (3110120-BS1)												
Prepared: 11/05/13 14:08 Analyzed: 11/08/13 17:00												
SM 5310B MOD												
Total Organic Carbon	9100	---		mg/kg	1	10000	---	91	85-115%	---	---	---

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Tigard, OR 97223
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503-718-0333 Fax

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11/22/13 10:05

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	------	--------------	---------------	------	-------------	-----	-----------	-------

Batch 3110090 - Total Solids (Dry Weight)

Soil

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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12232 S.W. Garden Place
 Tigard, OR 97223
 503-718-2323 Phone
 503-718-0333 Fax

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 Project Manager: Ross Rieke

Reported:
 11/22/13 10:05

SAMPLE PREPARATION INFORMATION

Diesel and Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110125</u>							
A3K0014-01RE1	Soil	NWTPH-Dx	10/29/13 11:00	11/05/13 15:37	11.49g/5mL	10g/5mL	0.87

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Prep: EPA 5035A					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110047</u>							
A3K0014-01	Soil	NWTPH-Gx (MS)	10/29/13 11:00	11/01/13 14:20	11.942g/10mL	10g/10mL	0.84

Polychlorinated Biphenyls -- EPA 8082A

Prep: EPA 3546					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110375</u>							
A3K0014-01	Soil	EPA 8082A	10/29/13 11:00	11/13/13 09:57	11.44g/5mL	10g/2mL	2.19

Organochlorine Pesticides by EPA 8081B

Prep: EPA 3546/3640A (GPC)					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110347</u>							
A3K0014-01RE2	Soil	EPA 8081B	10/29/13 11:00	11/12/13 14:52	12.27g/10mL	10g/5mL	1.63

Semivolatile Organic Compounds by EPA 8270D - Selected Analytes

Prep: EPA 3546					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110193</u>							
A3K0014-01	Soil	EPA 8270D P/P	10/29/13 11:00	11/07/13 08:44	11.72g/5mL	10g/2mL	2.13

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 3110205</u>							
A3K0014-01	Soil	EPA 6020A	10/29/13 11:00	11/07/13 10:49	0.519g/50mL	0.5g/50mL	0.96

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Tigard, OR 97223
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Project: Schnitzer-Burgard
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Prep: Method Prep: Non-Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 3101020</u>							
A3K0014-01	Soil	SM 5310B MOD	10/29/13 11:00	11/05/13 14:08	5g/5g	5g/5g	NA

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 310090</u>							
A3K0014-01	Soil	EPA 8000C	10/29/13 11:00	11/04/13 17:02	1N/A/1N/A	1N/A/1N/A	NA

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Tigard, OR 97223
503-718-2323 Phone
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Project: **Schnitzer-Burgard**
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

Notes and Definitions

Qualifiers:

- C-05 Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
- C-07 Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- J Estimated Result . Result detected below the lowest point of the calibration curve, but above the specified MDL.
- Q-16 Reanalysis of an original Batch QC sample.
- Q-18 Matrix Spike results for this extraction batch are not reported due to the high dilution necessary for analysis of the source sample.
- R-02 The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- R-04 Reporting levels elevated due to dilution necessary for analysis.
- S-05 Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
- V-16 Sample aliquot was subsampled from the sample container in the laboratory . The subsampled aliquot was not preserved within 48 hours of sampling.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to $\frac{1}{2}$ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
- For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
- Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group

4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: **Schnitzer-Burgard**

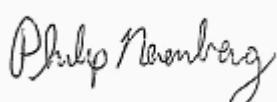
Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 26 of 27

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Bridgewater Group

4500 SW Kruse Way, Suite 110
Lake Oswego, OR 97035

Project: Schnitzer-Burgard

Project Number: 8001-20
Project Manager: Ross Rieke

Reported:
11/22/13 10:05

A3K0014

CHAIN OF CUSTODY									
Project Manager		Laboratory		Asses		Chain of Custody No.		Remarks	
Project Manager	Philip Nerenberg (philipn@apexlab.com)	Lab Project No.		Test Name	Test Source	Test Sample	Sample Received at Lab (Y or N)	Test Sample Appropriate Conditions Used (Y or N)	Provide Visual Results (Y or N)
Project No.	8001-20	Project Name	Schnitzer - Burgard	Test Name	Test Source	Test Sample	Y	N	Provide Photo/Video if available
Collected by	Cross Response	Collected by		Test One Punch	Test Sample	Test Sample	Y	Y	Provide Photo/Video if available
Comments									
Sample Number/Suffix:	-20131029								
Results & Invoice to Ross Rieke at Bridgewater Group (rieke@bridgewg20.com)									
METALS: Al, Si, As, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Ag, Zn									
Sample #	Date	Time	Sample Description						
1072-SWSP-NH1	2013-10-13	11:00	Merchandise base						
Received by	Company	Date	Received by	Company	Date	Received by	Company	Received by	Company
<i>Philip Nerenberg</i>	Apex	10/13/13	<i>John J. Schutte</i>	Apex	10/13/13	<i>John J. Schutte</i>	Apex	<i>John J. Schutte</i>	Apex
Released by	Company	Date	Released by	Company	Date	Released by	Company	Released by	Company
<i>Philip Nerenberg</i>	Apex	10/13/13	<i>John J. Schutte</i>	Apex	10/13/13	<i>John J. Schutte</i>	Apex	<i>John J. Schutte</i>	Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 27 of 27



Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 13, 2013

Philip Nerenberg
Apex Laboratories
12232 SW Garden Place
Tigard, OR 97223

Client Project: A3K0014
ARI Job No.: XN31

Dear Mr. Nerenberg:

Please find enclosed the original Chain of Custody record (COC), sample receipt documentation, and the final data for the samples from the project referenced above.

Sample receipt information and analytical details are addressed in the Case Narrative.

An electronic copy of this report and all supporting raw data will be kept on file at ARI. Should you have any questions or concerns, please feel free to call me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile: XN31

Enclosures

11-4-13 KH

SUBCONTRACT ORDER**Apex Laboratories****A3K0014****SENDING LABORATORY:**

Apex Laboratories
 12232 S.W. Garden Place
 Tigard, OR 97223
 Phone: (503) 718-2323
 Fax: (503) 718-0333
 Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Analytical Resources, INC
 4611 S. 134th Place
 Tukwila, WA 98168
 Phone :(206) 695-6200
 Fax: (206) 695-6201

Sample Name: B22-SWSP-MH-020131029**Soil****Sampled: 10/29/13 11:00****(A3K0014-01)**

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub) <i>Containers Supplied:</i> (A)4 oz Glass Jar	11/13/13 17:00	11/12/13 11:00	Krone--ARI

Standard Turn

<i>Krugle 11/7/13 140</i>		<input type="checkbox"/> UPS (Shipper)
Released By	Date	Received By
<input type="checkbox"/> UPS (Shipper)		<i>L. Krugle</i>
Released By	Date	Received By
		<i>L. Krugle</i>
		Date 11/8/13 1030



Cooler Receipt Form

ARI Client: APEX

COC No(s): _____ NA

Assigned ARI Job No. XN31

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)
Time: 1045 2.5

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID# 90877952

Cooler Accepted by: JM Date 11/8/13 Time. 1030

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other NA YES NO

Was sufficient ice used (if appropriate)? YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) YES NO

Were all VOC vials free of air bubbles? YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI YES NO

Was Sample Split by ARI YES Date/Time. _____ Equipment. _____ Split by: _____

Samples Logged by TG Date: 11/8/13 Time: 1317

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By:

Date:

Small Air Bubbles ~2mm • • •	Peabubbles 2-4 mm • • •	LARGE Air Bubbles > 4 mm • • •	Small → "sm" (< 2 mm) Peabubbles → "pb" (2 to < 4 mm) Large → "lg" (4 to < 6 mm) Headspace → "hs" (> 6 mm)
---	--------------------------------------	---	---



Case Narrative

Client: Apex Laboratories

Project: A3K0014

ARI Job No.: XN31

Sample Receipt

Analytical Resources, Inc. (ARI) accepted one soil sample on November 8, 2013 under ARI job XN31. The cooler temperature measured by IR thermometer following ARI SOP was 2.5°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

The sample was analyzed for parameters as requested on the COC.

Butyltins by Krone 1988 SIM

There were no irregularities with this analysis.

Sample ID Cross Reference Report



ARI Job No: XN31
Client: Apex Labs
Project Event: A3K0014
Project Name: N/A

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. B22-SWSP-MH-020131029	XN31A	13-24670	Soil	10/29/13 11:00	11/08/13 10:30

Printed 11/08/13 Page 1 of 1

XN31 : 00005

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS
Extraction Method: SW3546

Page 1 of 1

Lab Sample ID: XN31A
LIMS ID: 13-24670
Matrix: Soil
Data Release Authorized: *MW*
Reported: 11/13/13

Date Extracted: 11/11/13
Date Analyzed: 11/13/13 09:32
Instrument/Analyst: NT12/VTS
Silica Gel Cleanup: No

QC Report No: XN31-Apex Labs
Project: A3K0014
Event: NA
Date Sampled: 10/29/13
Date Received: 11/08/13

Sample Amount: 5.06 g-dry-wt
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Alumina Cleanup: Yes
Moisture: 15.6%

CAS Number	Analyte	LOD	LOQ	Result	Q
36643-28-4	Tributyltin Ion	1.0	3.8	< 3.8	U
14488-53-0	Dibutyltin Ion	3.8	5.7	3.0	J
78763-54-9	Butyltin Ion	2.3	4.0	6.1	

Reported in µg/kg (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	68.2%
Tripentyl Tin Chloride	78.2%

TBT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: XN31-Apex Labs
 Project: A3K0014
 Event: NA

Client ID	TPRT	TPNT	TOT OUT
MB-111113	67.6%	82.5%	0
LCS-111113	71.8%	84.9%	0
LCSD-111113	69.9%	82.6%	0
B22-SWSP-MH-020131029	68.2%	78.2%	0

	LCS/MB LIMITS	QC LIMITS
(TPRT) = Tripropyl Tin Chloride	(28-106)	(32-104)
(TPNT) = Tripentyl Tin Chloride	(35-130)	(25-140)

Prep Method: SW3546
 Analytical Method: TBT (Hexyl) Krone 1988
 Log Number Range: 13-24670 to 13-24670

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS
Page 1 of 1

Lab Sample ID: LCS-111113

LIMS ID: 13-24670

Matrix: Soil

Data Release Authorized: *MW*

Reported: 11/13/13

Date Extracted LCS: 11/11/13

Date Analyzed LCS: 11/13/13 09:04

LCSD: 11/13/13 09:18

Instrument/Analyst LCS: NT12/VTS

LCSD: NT12/VTS

Silica Gel Cleanup: No

QC Report No: XN31-Apex Labs

Project: A3K0014

Date Sampled: NA

Date Received: NA

Sample Amount LCS: 5.00 g-dry-wt

LCSD: 5.00 g-dry-wt

Final Extract Volume LCS: 0.50 mL

LCSD: 0.50 mL

Dilution Factor LCS: 1.00

LCSD: 1.00

Alumina Cleanup: Yes

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Tributyltin Ion	40.2	44.6	90.1%	39.7	44.6	89.0%	1.3%
Dibutyltin Ion	31.1	38.4	81.0%	31.5	38.4	82.0%	1.3%
Butyltin Ion	23.3	31.2	74.7%	22.6	31.2	72.4%	3.1%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

TBT Surrogate Recovery

	LCS	LCSD
Tripropyl Tin Chloride	71.8%	69.9%
Tripentyl Tin Chloride	84.9%	82.6%

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS
Extraction Method: SW3546

Page 1 of 1

Lab Sample ID: MB-111113

LIMS ID: 13-24670

Matrix: Soil

Data Release Authorized: *MW*

Reported: 11/13/13

Date Extracted: 11/11/13

Date Analyzed: 11/13/13 08:50

Instrument/Analyst: NT12/VTS

Silica Gel Cleanup: No

Sample ID: MB-111113

METHOD BLANK

QC Report No: XN31-Apex Labs

Project: A3K0014

Event: NA

Date Sampled: NA

Date Received: NA

Sample Amount: 5.00 g-dry-wt

Final Extract Volume: 0.50 mL

Dilution Factor: 1.00

Alumina Cleanup: Yes

CAS Number	Analyte	LOD	LOQ	Result	Q
36643-28-4	Tributyltin Ion	1.0	3.9	< 3.9	U
14488-53-0	Dibutyltin Ion	3.8	5.8	< 5.8	U
78763-54-9	Butyltin Ion	2.3	4.1	< 4.1	U

Reported in µg/kg (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	67.6%
Tripentyl Tin Chloride	82.5%



Your Project #: A3K0014
Your C.O.C. #: na

Attention: Philip Nerenberg

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2013/12/31

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B3J0865**

Received: 2013/11/06, 11:35

Sample Matrix: Soil

Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dioxins/Furans in Soil (8290A) (1)	1	2013/11/12	2013/11/17	BRL SOP-00406	EPA 8290A mod.
Moisture	1	N/A	2013/11/06	CAM SOP-00445	R.Carter,1993
PCB Congeners in Soil (1668A) (2)	1	2013/12/04	2013/12/08	BRL SOP-00408	EPA 1668A mod.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Soils are reported on a dry weight basis unless otherwise specified.

Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

(2) Soils are reported on a dry weight basis unless otherwise specified.

U = Undetected at the limit of quantitation.

J = Estimated concentration between the EDL & RDL.

B = Blank Contamination.

Q = One or more quality control criteria failed.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ivana Vukovic, Env Project Manager

Email: IVukovic@maxxam.ca

Phone# (905) 817-5700

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Your Project #: A3K0014
Your C.O.C. #: na

Attention: Philip Nerenberg

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2013/12/31
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

-2-

Maxxam Analytics Inc. Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section.

Total cover pages: 2

Page 2 of 36

Maxxam Job #: B3J0865
Report Date: 2013/12/31

Apex Laboratories
Client Project #: A3K0014

RESULTS OF ANALYSES OF SOIL

Maxxam ID		TT9622		
Sampling Date		2013/10/29 11:00		
COC Number		na		
	Units	B22-SWSP-MH-020131029	RDL	QC Batch

Moisture	%	17	1.0	3413680
----------	---	----	-----	---------

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

DIOXINS AND FURANS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na		TOXIC EQUIVALENCY		# of		
	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/g	0.23 U	0.23	1.9	1.00	0.230		3424985
1,2,3,7,8-Penta CDD	pg/g	0.74 J	0.20	4.9	1.00	0.740		3424985
1,2,3,4,7,8-Hexa CDD	pg/g	1.0 U (1)	1.0	4.9	0.100	0.100		3424985
1,2,3,6,7,8-Hexa CDD	pg/g	2.4 U (1)	2.4	4.9	0.100	0.240		3424985
1,2,3,7,8,9-Hexa CDD	pg/g	2.40 J	0.13	4.9	0.100	0.240		3424985
1,2,3,4,6,7,8-Hepta CDD	pg/g	54.6	0.081	4.9	0.0100	0.546		3424985
Octa CDD	pg/g	438	0.11	9.7	0.000300	0.131		3424985
Total Tetra CDD	pg/g	0.44 U (1)	0.44	1.9				3424985
Total Penta CDD	pg/g	1.52 J	0.20	4.9				3424985
Total Hexa CDD	pg/g	17.1	0.13	4.9				3424985
Total Hepta CDD	pg/g	142	0.081	4.9				3424985
2,3,7,8-Tetra CDF **	pg/g	0.44 J	0.16	1.9	0.100	0.0440		3424985
1,2,3,7,8-Penta CDF	pg/g	0.21 J	0.19	4.9	0.0300	0.00630		3424985
2,3,4,7,8-Penta CDF	pg/g	0.41 U (1)	0.41	4.9	0.300	0.123		3424985
1,2,3,4,7,8-Hexa CDF	pg/g	0.82 U (1)	0.82	4.9	0.100	0.0820		3424985
1,2,3,6,7,8-Hexa CDF	pg/g	0.676 J	0.096	4.9	0.100	0.0676		3424985
2,3,4,6,7,8-Hexa CDF	pg/g	0.56 J	0.10	4.9	0.100	0.0560		3424985
1,2,3,7,8,9-Hexa CDF	pg/g	0.12 U	0.12	4.9	0.100	0.0120		3424985
1,2,3,4,6,7,8-Hepta CDF	pg/g	18.5	0.073	4.9	0.0100	0.185		3424985
1,2,3,4,7,8,9-Hepta CDF	pg/g	1.08 J	0.096	4.9	0.0100	0.0108		3424985
Octa CDF	pg/g	58.3	0.14	9.7	0.000300	0.0175		3424985
Total Tetra CDF	pg/g	0.66 J	0.16	1.9				3424985
Total Penta CDF	pg/g	5.2	0.19	4.9				3424985
Total Hexa CDF	pg/g	17.7	0.10	4.9				3424985
Total Hepta CDF	pg/g	48.2	0.083	4.9				3424985
TOTAL TOXIC EQUIVALENCY	pg/g					2.83		
Surrogate Recovery (%)								
C13-1234678 HeptaCDD	%	93						3424985

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3J0865
Report Date: 2013/12/31

Apex Laboratories
Client Project #: A3K0014

DIOXINS AND FURANS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na			TOXIC EQUIVALENCY	# of		
Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

C13-1234678 HeptaCDF **	%	100						3424985
C13-123478 HexaCDF	%	84						3424985
C13-123678 HexaCDD *	%	71						3424985
C13-12378 PentaCDD	%	73						3424985
C13-12378 PentaCDF	%	78						3424985
C13-2378 TetraCDD	%	63						3424985
C13-2378 TetraCDF	%	88						3424985
C13-OCDD	%	101						3424985

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

* CDD = Chloro Dibenz-p-Dioxin, ** CDF = Chloro Dibenz-p-Furan

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622							
Sampling Date		2013/10/29 11:00							
COC Number		na			TOXIC EQUIVALENCY		# of		
	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
2-MonoCB-(1)	ng/g	0.0048 J	0.0023	0.0095					3450671
3-MonoCB-(2)	ng/g	0.0019 U	0.0019	0.0095					3450671
4-MonoCB-(3)	ng/g	0.0047 J	0.0021	0.0095					3450671
2,2'-DiCB-(4)	ng/g	0.0443	0.0020	0.0095					3450671
2,3-DiCB-(5)	ng/g	0.0021 U	0.0021	0.0095					3450671
2,3'-DiCB-(6)	ng/g	0.0230	0.0018	0.0095					3450671
2,4-DiCB-(7)	ng/g	0.0039 J	0.0017	0.0095					3450671
2,4'-DiCB-(8)	ng/g	0.0830	0.0015	0.0095					3450671
2,5-DiCB-(9)	ng/g	0.0064 J	0.0018	0.0095					3450671
2,6-DiCB-(10)	ng/g	0.0019 J	0.0015	0.0095					3450671
3,3'-DiCB-(11)	ng/g	0.0449	0.0018	0.0095					3450671
DiCB-(12)+(13)	ng/g	0.0157 J	0.0018	0.019					3450671
3,5-DiCB-(14)	ng/g	0.0017 U	0.0017	0.0095					3450671
4,4'-DiCB-(15)	ng/g	0.182	0.0029	0.0095					3450671
2,2'3-TriCB-(16)	ng/g	0.121	0.0022	0.0095					3450671
2,2'4-TriCB-(17)	ng/g	0.137	0.0022	0.0095					3450671
TriCB-(18)+(30)	ng/g	0.302	0.0017	0.019					3450671
2,2'6-TriCB-(19)	ng/g	0.0413	0.0020	0.0095					3450671
TriCB-(20) + (28)	ng/g	0.610	0.0019	0.019					3450671
TriCB-(21)+(33)	ng/g	0.319	0.0019	0.019					3450671
234'-TriCB-(22)	ng/g	0.217	0.0019	0.0095					3450671
235-TriCB-(23)	ng/g	0.0019 U	0.0019	0.0095					3450671
236-TriCB-(24)	ng/g	0.0050 J	0.0017	0.0095					3450671
23'4-TriCB-(25)	ng/g	0.0423	0.0018	0.0095					3450671
TriCB-(26)+(29)	ng/g	0.086	0.0019	0.019					3450671
23'6-TriCB-(27)	ng/g	0.0305	0.0015	0.0095					3450671
24'5-TriCB-(31)	ng/g	0.470	0.0017	0.0095					3450671
24'6-TriCB-(32)	ng/g	0.112	0.0014	0.0095					3450671
23'5'-TriCB-(34)	ng/g	0.0019 U	0.0019	0.0095					3450671

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622							
Sampling Date		2013/10/29 11:00							
COC Number		na			TOXIC EQUIVALENCY		# of		
	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
33'4-TriCB-(35)	ng/g	0.0112	0.0019	0.0095					3450671
33'5-TriCB-(36)	ng/g	0.0017 U	0.0017	0.0095					3450671
344'-TriCB-(37)	ng/g	0.193	0.0022	0.0095					3450671
345-TriCB-(38)	ng/g	0.0019 U	0.0019	0.0095					3450671
34'5-TriCB-(39)	ng/g	0.0018 U	0.0018	0.0095					3450671
TetraCB-(40)+(41)+(71)	ng/g	0.308	0.0022	0.029					3450671
22'34'-TetraCB-(42)	ng/g	0.176	0.0028	0.0095					3450671
22'35'-TetraCB-(43)	ng/g	0.0255	0.0032	0.0095					3450671
TetraCB-(44)+(47)+(65)	ng/g	0.668	0.0021	0.029					3450671
TetraCB-(45)+(51)	ng/g	0.118	0.0022	0.019					3450671
22'36'-TetraCB-(46)	ng/g	0.0485	0.0028	0.0095					3450671
22'45'-TetraCB-(48)	ng/g	0.0971	0.0021	0.0095					3450671
TetraCB-(49)+TetraCB-(69)	ng/g	0.363	0.0020	0.019					3450671
TetraCB-(50)+(53)	ng/g	0.097	0.0021	0.019					3450671
22'55'-TetraCB-(52)	ng/g	1.16	0.0022	0.0095					3450671
22'66'-TetraCB-(54)	ng/g	0.0019 U	0.0019	0.0095					3450671
233'4-TetraCB-(55)	ng/g	0.0019 U	0.0019	0.0095					3450671
233'4'-Tetra CB-(56)	ng/g	0.151	0.0020	0.0095					3450671
233'5-TetraCB-(57)	ng/g	0.0018 U	0.0018	0.0095					3450671
233'5'-TetraCB-(58)	ng/g	0.0018 U	0.0018	0.0095					3450671
TetraCB-(59)+(62)+(75)	ng/g	0.057	0.0016	0.029					3450671
2344'-TetraCB -(60)	ng/g	0.0643	0.0018	0.0095					3450671
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.921	0.0018	0.038					3450671
234'5-TetraCB-(63)	ng/g	0.0118	0.0017	0.0095					3450671
234'6-TetraCB-(64)	ng/g	0.321	0.0018	0.0095					3450671
23'44'-TetraCB-(66)	ng/g	0.290	0.0016	0.0095					3450671
23'45-TetraCB-(67)	ng/g	0.0114	0.0016	0.0095					3450671
23'45'-TetraCB-(68)	ng/g	0.0016 U	0.0016	0.0095					3450671
23'55'-TetraCB-(72)	ng/g	0.0018 U (1)	0.0018	0.0095					3450671

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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622							
Sampling Date		2013/10/29 11:00							
COC Number		na			TOXIC EQUIVALENCY	# of			
	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
23'5'6-TetraCB-(73)	ng/g	0.0015 U	0.0015	0.0095					3450671
33'44'-TetraCB-(77)	ng/g	0.0385	0.0020	0.0095	0.000100	0.00000385			3450671
33'45-TetraCB-(78)	ng/g	0.0018 U	0.0018	0.0095					3450671
33'45'-TetraCB(79)	ng/g	0.0294	0.0016	0.0095					3450671
33'55'-TetraCB-(80)	ng/g	0.0016 U	0.0016	0.0095					3450671
344'5-TetraCB-(81)	ng/g	0.0020 U	0.0020	0.0095	0.000300	0.000000600			3450671
22'33'4-PentaCB-(82)	ng/g	0.165	0.0027	0.0095					3450671
PentaCB-(83)+(99)	ng/g	0.722	0.0026	0.019					3450671
22'33'6-PentaCB-(84)	ng/g	0.487	0.0030	0.0095					3450671
PentaCB-(85)+(116)+(117)	ng/g	0.162	0.0020	0.029					3450671
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	1.04	0.0021	0.057					3450671
PentaCB-(88)+(91)	ng/g	0.197	0.0025	0.019					3450671
22'346'-PentaCB-(89)	ng/g	0.0133	0.0026	0.0095					3450671
PentaCB-(90)+(101)+(113)	ng/g	1.61	0.0021	0.029					3450671
22'355'-PentaCB-(92)	ng/g	0.271	0.0025	0.0095					3450671
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.050	0.0026	0.038					3450671
22'356'-PentaCB-(94)	ng/g	0.0070 J	0.0027	0.0095					3450671
22'357'-PentaCB-(95)	ng/g	1.52	0.0024	0.0095					3450671
22'366'-PentaCB-(96)	ng/g	0.0097	0.0017	0.0095					3450671
22'456-PentaCB-(103)	ng/g	0.0066 J	0.0022	0.0095					3450671
22'466'-PentaCB-(104)	ng/g	0.0016 U	0.0016	0.0095					3450671
233'44'-PentaCB-(105)	ng/g	0.560	0.0019	0.0095	0.0000300	0.0000168			3450671
233'45-PentaCB-(106)	ng/g	0.0017 U	0.0017	0.10					3450671
233'45-PentaCB-(107)	ng/g	0.0784	0.0017	0.0095					3450671
PentaCB-(108)+(124)	ng/g	0.051	0.0017	0.019					3450671
PentaCB-(110)+(115)	ng/g	2.27	0.0020	0.019					3450671
233'55'-PentaCB-(111)	ng/g	0.0017 U	0.0017	0.0095					3450671
233'56-PentaCB-(112)	ng/g	0.0018 U	0.0018	0.0095					3450671
2344'5-PentaCB-(114)	ng/g	0.0279	0.0019	0.0095	0.0000300	0.000000837			3450671

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Maxxam Job #: B3J0865
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Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622							
Sampling Date		2013/10/29 11:00							
COC Number		na			TOXIC EQUIVALENCY		# of		
	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
23'44'5-PentaCB-(118)	ng/g	1.40	0.0019	0.0095	0.0000300	0.0000420			3450671
23'455'-PentaCB-(120)	ng/g	0.0016 U	0.0016	0.0095					3450671
23'45'6-PentaCB-(121)	ng/g	0.0018 U	0.0018	0.0095					3450671
233'4'5-PentaCB-(122)	ng/g	0.0156	0.0019	0.0095					3450671
23'44'5-PentaCB-(123)	ng/g	0.0175	0.0021	0.0095	0.0000300	0.000000525			3450671
33'44'5-PentaCB-(126)	ng/g	0.0041 J	0.0019	0.0095	0.100	0.000410			3450671
33'455'-PentaCB-(127)	ng/g	0.0017 U	0.0017	0.0095					3450671
HexaCB-(128)+(166)	ng/g	0.405	0.0021	0.019					3450671
HexaCB-(129)+(138)+(163)	ng/g	2.99	0.0023	0.029					3450671
22'33'45'-HexaCB-(130)	ng/g	0.156	0.0027	0.0095					3450671
22'33'46-HexaCB-(131)	ng/g	0.0393	0.0029	0.0095					3450671
22'33'46'-HexaCB-(132)	ng/g	0.953	0.0026	0.0095					3450671
22'33'55'-HexaCB-(133)	ng/g	0.0282	0.0025	0.0095					3450671
HexaCB-(134)+(143)	ng/g	0.125	0.0027	0.019					3450671
HexaCB-(135)+(151)	ng/g	0.678	0.0024	0.019					3450671
22'33'66'-HexaCB-(136)	ng/g	0.301	0.0019	0.0095					3450671
22'344'5-HexaCB-(137)	ng/g	0.135	0.0024	0.0095					3450671
HexaCB-(139)+(140)	ng/g	0.039	0.0023	0.019					3450671
22'3455'-HexaCB-(141)	ng/g	0.485	0.0026	0.0095					3450671
22'3456-HexaCB-(142)	ng/g	0.0027 U	0.0027	0.0095					3450671
22'345'6-HexaCB-(144)	ng/g	0.0968	0.0023	0.0095					3450671
22'3466'-HexaCB-(145)	ng/g	0.0019 U	0.0019	0.0095					3450671
22'34'55'-HexaCB-(146)	ng/g	0.300	0.0022	0.0095					3450671
HexaCB-(147)+(149)	ng/g	1.88	0.0021	0.019					3450671
22'34'56'-HexaCB-(148)	ng/g	0.0024 U	0.0024	0.0095					3450671
22'34'66'-HexaCB-(150)	ng/g	0.0019 U	0.0019	0.0095					3450671
22'3566'-HexaCB-(152)	ng/g	0.0018 U	0.0018	0.0095					3450671
HexaCB-(153)+(168)	ng/g	1.84	0.0019	0.019					3450671
22'44'56'-HexaCB-(154)	ng/g	0.0121	0.0021	0.0095					3450671

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Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622							
Sampling Date		2013/10/29 11:00							
COC Number		na			TOXIC EQUIVALENCY		# of		
	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
22'44'66'-HexaCB-(155)	ng/g	0.0021 U	0.0021	0.0095					3450671
HexaCB-(156)+(157)	ng/g	0.267	0.0024	0.019	0.0000300	0.00000801			3450671
233'44'6-HexaCB-(158)	ng/g	0.271	0.0018	0.0095					3450671
233'455'-HexaCB-(159)	ng/g	0.0165	0.0024	0.0095					3450671
233'456-HexaCB-(160)	ng/g	0.0019 U	0.0019	0.0095					3450671
233'45'6-HexaCB-(161)	ng/g	0.0018 U	0.0018	0.0095					3450671
233'4'55'-HexaCB-(162)	ng/g	0.0054 U (1)	0.0054	0.0095					3450671
233'4'5'6-HexaCB-(164)	ng/g	0.177	0.0019	0.0095					3450671
233'55'6-HexaCB-(165)	ng/g	0.0019 U	0.0019	0.0095					3450671
23'44'55'-HexaCB-(167)	ng/g	0.0855	0.0026	0.0095	0.0000300	0.00000257			3450671
33'44'55'-HexaCB-(169)	ng/g	0.0026 U	0.0026	0.0095	0.0300	0.0000780			3450671
22'33'44'5-HeptaCB-(170)	ng/g	0.460	0.0015	0.0095					3450671
HeptaCB-(171)+(173)	ng/g	0.146	0.0018	0.019					3450671
22'33'455'-HeptaCB-(172)	ng/g	0.0760	0.0019	0.0095					3450671
22'33'456'-HeptaCB-(174)	ng/g	0.503	0.0018	0.0095					3450671
22'33'45'6-HeptaCB-(175)	ng/g	0.0201	0.0026	0.0095					3450671
22'33'466'-HeptaCB-(176)	ng/g	0.0572	0.0020	0.0095					3450671
22'33'45'6-HeptaCB-(177)	ng/g	0.268	0.0018	0.0095					3450671
22'33'55'6-HeptaCB-(178)	ng/g	0.0796	0.0028	0.0095					3450671
22'33'566'-HeptaCB-(179)	ng/g	0.175	0.0019	0.0095					3450671
HeptaCB-(180)+(193)	ng/g	1.09	0.0015	0.019					3450671
22'344'56-HeptaCB-(181)	ng/g	0.0017 U	0.0017	0.0095					3450671
22'344'56-HeptaCB-(182)	ng/g	0.0027 U	0.0027	0.0095					3450671
22'344'5'6-HeptaCB-(183)	ng/g	0.299	0.0016	0.0095					3450671
22'344'66'-HeptaCB-(184)	ng/g	0.0018 U	0.0018	0.0095					3450671
22'3455'6-HeptaCB-(185)	ng/g	0.0016 U	0.0016	0.0095					3450671
22'34566'-HeptaCB-(186)	ng/g	0.0020 U	0.0020	0.0095					3450671
22'34'55'6-HeptaCB-(187)	ng/g	0.495	0.0025	0.0095					3450671

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622							
Sampling Date		2013/10/29 11:00							
COC Number		na			TOXIC EQUIVALENCY		# of		
	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	
22'34'566'-HeptaCB-(188)	ng/g	0.0024 U	0.0024	0.0095					3450671
233'44'55'-HeptaCB-(189)	ng/g	0.0179	0.0024	0.0095	0.0000300	0.000000537			3450671
233'44'56-HeptaCB-(190)	ng/g	0.0871	0.0014	0.0095					3450671
233'44'56-HeptaCB-(191)	ng/g	0.0183	0.0014	0.0095					3450671
233'455'6-HeptaCB-(192)	ng/g	0.0015 U	0.0015	0.0095					3450671
22'33'44'55'-OctaCB-(194)	ng/g	0.149	0.0031	0.0095					3450671
22'33'44'56-OctaCB-(195)	ng/g	0.0667	0.0033	0.0095					3450671
22'33'44'56'-OctaCB-(196)	ng/g	0.0885	0.0024	0.0095					3450671
22'33'44'66'OctaCB-(197)	ng/g	0.0071 J	0.0017	0.0095					3450671
OctaCB-(198)+(199)	ng/g	0.183	0.0024	0.019					3450671
22'33'4566'-OctaCB-(200)	ng/g	0.0193	0.0017	0.0095					3450671
22'33'45'66'-OctaCB-(201)	ng/g	0.0215	0.0017	0.0095					3450671
22'33'55'66'-OctaCB-(202)	ng/g	0.0363	0.0023	0.0095					3450671
22'344'55'6-OctaCB-(203)	ng/g	0.112	0.0023	0.0095					3450671
22'344'566'-OctaCB-(204)	ng/g	0.0017 U	0.0017	0.0095					3450671
233'44'55'6-OctaCB-(205)	ng/g	0.0091 J	0.0026	0.0095					3450671
22'33'44'55'6-NonaCB-(206)	ng/g	0.111	0.0030	0.0095					3450671
22'33'44'566'-NonaCB-(207)	ng/g	0.0109	0.0022	0.0095					3450671
22'33'455'66'-NonaCB-(208)	ng/g	0.0331	0.0027	0.0095					3450671
DecaCB-(209)	ng/g	0.122	0.0042	0.0095					3450671
Monochlorobiphenyl	ng/g	0.0095	0.0023	N/A				2	3450671
Dichlorobiphenyl	ng/g	0.405	0.0029	N/A				9	3450671
Trichlorobiphenyl	ng/g	2.70	0.0022	N/A				15	3450671
Tetrachlorobiphenyl	ng/g	4.95	0.0032	N/A				20	3450671
Pentachlorobiphenyl	ng/g	10.7	0.0030	N/A				23	3450671
Hexachlorobiphenyl	ng/g	11.3	0.0029	N/A				22	3450671
Heptachlorobiphenyl	ng/g	3.79	0.0028	N/A				15	3450671
Octachlorobiphenyl	ng/g	0.692	0.0033	N/A				10	3450671
Nonachlorobiphenyl	ng/g	0.155	0.0030	N/A				3	3450671

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SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622							
Sampling Date		2013/10/29 11:00							
COC Number		na				TOXIC EQUIVALENCY	# of		
	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch	

Decachlorobiphenyl	ng/g	0.122	0.0042	N/A			1	3450671
Total PCB	ng/g	34.8	N/A	N/A				3450671
TOTAL TOXIC EQUIVALENCY	ng/g					0.000564		
Surrogate Recovery (%)								
C13-2,44'-TriCB-(28)	%	108						3450671
C13-22'33'44'55'6-NonaCB-(206)	%	89						3450671
C13-22'33'44'5-HeptaCB-(170)	%	127						3450671
C13-22'33'455'66'-NonaCB-(208)	%	108						3450671
C13-22'33'55'66'-OctaCB-(202)	%	120						3450671
C13-22'33'55'6-HeptaCB-(178)	%	100						3450671
C13-22'344'55'-HeptaCB-(180)	%	123						3450671
C13-22'34'566'-HeptaCB-(188)	%	89						3450671
C13-22'44'66'-HexaCB-(155)	%	88						3450671
C13-22'466'-PentaCB-(104)	%	88						3450671
C13-22'66'-TetraCB-(54)	%	91						3450671
C13-22'6-TriCB-(19)	%	90						3450671
C13-22'-DiCB-(4)	%	68						3450671
C13-233'44'55'6-OctaCB-(205)	%	101						3450671
C13-233'44'55'-HeptaCB-(189)	%	113						3450671
C13-233'44'-PentaCB-(105)	%	103						3450671
C13-233'55'-PentaCB-(111)	%	98						3450671
C13-23'44'55'-HexaCB-(167)	%	98						3450671
C13-2344'5-PentaCB-(114)	%	100						3450671
C13-23'44'5-PentaCB-(118)	%	103						3450671
C13-2'344'5-PentaCB-(123)	%	103						3450671
C13-2-MonoCB-(1)	%	67						3450671
C13-33'44'55'-HexaCB-(169)	%	51						3450671
C13-33'44'5-PentaCB-(126)	%	91						3450671
C13-33'44'-TetraCB-(77)	%	116						3450671

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SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622							
Sampling Date		2013/10/29 11:00							
COC Number		na			TOXIC EQUIVALENCY	# of			

	Units	B22-SWSP-MH-020131029	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-344'5-TetraCB-(81)	%	116						3450671
C13-344'-TriCB-(37)	%	113						3450671
C13-44'-DiCB-(15)	%	115						3450671
C13-4-MonoCB-(3)	%	78						3450671
C13-DecaCB-(209)	%	72						3450671
C13-HexaCB-(156)+(157)	%	93						3450671

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Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na			TOXIC EQUIVALENCY	# of		
	Units	B22-SWSP-MH-020131029 Lab-Dup	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

2-MonoCB-(1)	ng/g	0.0059 J	0.0022	0.0098				3450671
3-MonoCB-(2)	ng/g	0.0019 U	0.0019	0.0098				3450671
4-MonoCB-(3)	ng/g	0.0057 J	0.0021	0.0098				3450671
22'-DiCB-(4)	ng/g	0.0609 (1)	0.0023	0.0098				3450671
2,3-DiCB-(5)	ng/g	0.0023 U	0.0023	0.0098				3450671
2,3'-DiCB-(6)	ng/g	0.0312	0.0019	0.0098				3450671
2,4-DiCB-(7)	ng/g	0.0049 J	0.0019	0.0098				3450671
2,4'-DiCB-(8)	ng/g	0.106	0.0016	0.0098				3450671
2,5-DiCB-(9)	ng/g	0.0090 J	0.0019	0.0098				3450671
2,6-DiCB-(10)	ng/g	0.0026 J	0.0017	0.0098				3450671
3,3'-DiCB-(11)	ng/g	0.0515	0.0020	0.0098				3450671
DiCB-(12)+(13)	ng/g	0.022	0.0020	0.020				3450671
3,5-DiCB-(14)	ng/g	0.0019 U	0.0019	0.0098				3450671
4,4'-DiCB-(15)	ng/g	0.258 (1)	0.0032	0.0098				3450671
22'3-TriCB-(16)	ng/g	0.176 (1)	0.0030	0.0098				3450671
22'4-TriCB-(17)	ng/g	0.211 (1)	0.0030	0.0098				3450671
TriCB-(18)+(30)	ng/g	0.444 (1)	0.0024	0.020				3450671
22'6-TriCB-(19)	ng/g	0.0613 (1)	0.0027	0.0098				3450671
TriCB-(20) + (28)	ng/g	0.858 (1)	0.0023	0.020				3450671
TriCB-(21)+(33)	ng/g	0.455 (1)	0.0023	0.020				3450671
234'-TriCB-(22)	ng/g	0.301 (1)	0.0023	0.0098				3450671
235-TriCB-(23)	ng/g	0.0023 U	0.0023	0.0098				3450671
236-TriCB-(24)	ng/g	0.0128	0.0024	0.0098				3450671
23'4-TriCB-(25)	ng/g	0.0602 (1)	0.0023	0.0098				3450671
TriCB-(26)+(29)	ng/g	0.121 (1)	0.0023	0.020				3450671
23'6-TriCB-(27)	ng/g	0.0452	0.0021	0.0098				3450671
24'5-TriCB-(31)	ng/g	0.668 (1)	0.0021	0.0098				3450671

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TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) Duplicate sample results don't match. Probably due to matrix homogeneity.

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na			TOXIC EQUIVALENCY	# of		
	Units	B22-SWSP-MH-020131029 Lab-Dup	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

24'6-TriCB-(32)	ng/g	0.160 (1)	0.0019	0.0098				3450671
23'5'-TriCB-(34)	ng/g	0.0024 U	0.0024	0.0098				3450671
33'4-TriCB-(35)	ng/g	0.0165	0.0023	0.0098				3450671
33'5-TriCB-(36)	ng/g	0.0020 U	0.0020	0.0098				3450671
344'-TriCB-(37)	ng/g	0.284 (1)	0.0026	0.0098				3450671
345-TriCB-(38)	ng/g	0.0023 U	0.0023	0.0098				3450671
34'5-TriCB-(39)	ng/g	0.0022 U	0.0022	0.0098				3450671
TetraCB-(40)+(41)+(71)	ng/g	0.427 (1)	0.0023	0.029				3450671
22'34'-TetraCB-(42)	ng/g	0.243 (1)	0.0030	0.0098				3450671
22'35-TetraCB-(43)	ng/g	0.0341	0.0034	0.0098				3450671
TetraCB-(44)+(47)+(65)	ng/g	0.783	0.0022	0.029				3450671
TetraCB-(45)+(51)	ng/g	0.179 (1)	0.0023	0.020				3450671
22'36'-TetraCB-(46)	ng/g	0.0748 (1)	0.0029	0.0098				3450671
22'45-TetraCB-(48)	ng/g	0.139 (1)	0.0023	0.0098				3450671
TetraCB-(49)+TetraCB-(69)	ng/g	0.434	0.0021	0.020				3450671
TetraCB-(50)+(53)	ng/g	0.135 (1)	0.0023	0.020				3450671
22'55'-TetraCB-(52)	ng/g	1.19	0.0023	0.0098				3450671
22'66'-TetraCB-(54)	ng/g	0.0025 U	0.0025	0.0098				3450671
233'4-TetraCB-(55)	ng/g	0.0022 U	0.0022	0.0098				3450671
233'4'-Tetra CB(56)	ng/g	0.193	0.0023	0.0098				3450671
233'5-TetraCB-(57)	ng/g	0.0021 U	0.0021	0.0098				3450671
233'5'-TetraCB-(58)	ng/g	0.0021 U	0.0021	0.0098				3450671
TetraCB-(59)+(62)+(75)	ng/g	0.082	0.0017	0.029				3450671
2344'-TetraCB -(60)	ng/g	0.0835	0.0021	0.0098				3450671
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.929	0.0021	0.039				3450671
234'5-TetraCB-(63)	ng/g	0.0130	0.0020	0.0098				3450671
234'6-TetraCB-(64)	ng/g	0.421	0.0019	0.0098				3450671

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Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na				TOXIC EQUIVALENCY	# of	
	Units	B22-SWSP-MH-020131029 Lab-Dup	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

23'44'-TetraCB-(66)	ng/g	0.327	0.0019	0.0098				3450671
23'45'-TetraCB-(67)	ng/g	0.0154	0.0019	0.0098				3450671
23'45'-TetraCB-(68)	ng/g	0.0018 U	0.0018	0.0098				3450671
23'55'-TetraCB-(72)	ng/g	0.0026 J	0.0020	0.0098				3450671
23'56'-TetraCB-(73)	ng/g	0.0016 U	0.0016	0.0098				3450671
33'44'-TetraCB-(77)	ng/g	0.0541 (1)	0.0023	0.0098	0.000100	0.00000541		3450671
33'45'-TetraCB-(78)	ng/g	0.0021 U	0.0021	0.0098				3450671
33'45'-TetraCB(79)	ng/g	0.0238	0.0018	0.0098				3450671
33'55'-TetraCB-(80)	ng/g	0.0019 U	0.0019	0.0098				3450671
344'5-TetraCB-(81)	ng/g	0.0024 U	0.0024	0.0098	0.000300	0.000000720		3450671
22'33'4-PentaCB-(82)	ng/g	0.152	0.0033	0.0098				3450671
PentaCB-(83)+(99)	ng/g	0.610	0.0032	0.020				3450671
22'33'6-PentaCB-(84)	ng/g	0.446	0.0037	0.0098				3450671
PentaCB-(85)+(116)+(117)	ng/g	0.149	0.0025	0.029				3450671
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.874	0.0026	0.059				3450671
PentaCB-(88)+(91)	ng/g	0.189	0.0030	0.020				3450671
22'346'-PentaCB-(89)	ng/g	0.0129	0.0032	0.0098				3450671
PentaCB-(90)+(101)+(113)	ng/g	1.37	0.0026	0.029				3450671
22'355'-PentaCB-(92)	ng/g	0.235	0.0031	0.0098				3450671
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.052	0.0032	0.039				3450671
22'356'-PentaCB-(94)	ng/g	0.0083 J	0.0033	0.0098				3450671
22'35'6-PentaCB-(95)	ng/g	1.39	0.0030	0.0098				3450671
22'366'-PentaCB-(96)	ng/g	0.0107	0.0017	0.0098				3450671
22'45'6-PentaCB-(103)	ng/g	0.0071 J	0.0027	0.0098				3450671
22'466'-PentaCB-(104)	ng/g	0.0016 U	0.0016	0.0098				3450671
233'44'-PentaCB-(105)	ng/g	0.478	0.0021	0.0098	0.0000300	0.0000143		3450671
233'45-PentaCB-(106)	ng/g	0.0019 U	0.0019	0.0098				3450671

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(1) Duplicate sample results don't match. Probably due to matrix homogeneity.

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na			TOXIC EQUIVALENCY	# of		
	Units	B22-SWSP-MH-020131029 Lab-Dup	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

233'4'5-PentaCB-(107)	ng/g	0.0671	0.0018	0.0098				3450671
PentaCB-(108)+(124)	ng/g	0.042	0.0019	0.020				3450671
PentaCB-(110)+(115)	ng/g	2.07	0.0025	0.020				3450671
233'55'-PentaCB-(111)	ng/g	0.0020 U	0.0020	0.0098				3450671
233'56-PentaCB-(112)	ng/g	0.0022 U	0.0022	0.0098				3450671
2344'5-PentaCB-(114)	ng/g	0.0240	0.0021	0.0098	0.0000300	0.000000720		3450671
23'44'5-PentaCB-(118)	ng/g	1.14	0.0021	0.0098	0.0000300	0.0000342		3450671
23'455'-PentaCB-(120)	ng/g	0.0020 U	0.0020	0.0098				3450671
23'45'6-PentaCB-(121)	ng/g	0.0022 U	0.0022	0.0098				3450671
233'4'5-PentaCB-(122)	ng/g	0.013 U (1)	0.013	0.0098				3450671
23'44'5-PentaCB-(123)	ng/g	0.0168	0.0023	0.0098	0.0000300	0.000000504		3450671
33'44'5-PentaCB-(126)	ng/g	0.0047 U (1)	0.0047	0.0098	0.100	0.000470		3450671
33'455'-PentaCB-(127)	ng/g	0.0019 U	0.0019	0.0098				3450671
HexaCB-(128)+(166)	ng/g	0.317	0.0022	0.020				3450671
HexaCB-(129)+(138)+(163)	ng/g	2.60	0.0024	0.029				3450671
22'33'45'-HexaCB-(130)	ng/g	0.132	0.0028	0.0098				3450671
22'33'46-HexaCB-(131)	ng/g	0.0330	0.0031	0.0098				3450671
22'33'46-HexaCB-(132)	ng/g	0.820	0.0027	0.0098				3450671
22'33'55'-HexaCB-(133)	ng/g	0.0250	0.0026	0.0098				3450671
HexaCB-(134)+(143)	ng/g	0.118	0.0028	0.020				3450671
HexaCB-(135)+(151)	ng/g	0.625	0.0022	0.020				3450671
22'33'66'-HexaCB-(136)	ng/g	0.271	0.0018	0.0098				3450671
22'344'5-HexaCB-(137)	ng/g	0.112	0.0026	0.0098				3450671
HexaCB-(139)+(140)	ng/g	0.032	0.0024	0.020				3450671
22'3455'-HexaCB-(141)	ng/g	0.429	0.0027	0.0098				3450671
22'3456-HexaCB-(142)	ng/g	0.0028 U	0.0028	0.0098				3450671
22'345'6-HexaCB-(144)	ng/g	0.0845	0.0021	0.0098				3450671

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na				TOXIC EQUIVALENCY	# of	
	Units	B22-SWSP-MH-020131029 Lab-Dup	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

22'3466'-HexaCB-(145)	ng/g	0.0018 U	0.0018	0.0098				3450671
22'34'55'-HexaCB-(146)	ng/g	0.273	0.0023	0.0098				3450671
HexaCB-(147)+(149)	ng/g	1.70	0.0023	0.020				3450671
22'34'56'-HexaCB-(148)	ng/g	0.0022 U	0.0022	0.0098				3450671
22'34'66'-HexaCB-(150)	ng/g	0.0018 U	0.0018	0.0098				3450671
22'3566'-HexaCB-(152)	ng/g	0.0017 U	0.0017	0.0098				3450671
HexaCB-(153)+(168)	ng/g	1.60	0.0019	0.020				3450671
22'44'56'-HexaCB-(154)	ng/g	0.0132	0.0020	0.0098				3450671
22'44'66'-HexaCB-(155)	ng/g	0.0020 U	0.0020	0.0098				3450671
HexaCB-(156)+(157)	ng/g	0.223	0.0028	0.020	0.0000300	0.00000669		3450671
233'44'6-HexaCB-(158)	ng/g	0.234	0.0019	0.0098				3450671
233'455'-HexaCB-(159)	ng/g	0.0162	0.0027	0.0098				3450671
233'456-HexaCB-(160)	ng/g	0.0020 U	0.0020	0.0098				3450671
233'45'6-HexaCB-(161)	ng/g	0.0019 U	0.0019	0.0098				3450671
233'4'55'-HexaCB-(162)	ng/g	0.0048 J	0.0026	0.0098				3450671
233'4'5'6-HexaCB-(164)	ng/g	0.159	0.0020	0.0098				3450671
233'55'6-HexaCB-(165)	ng/g	0.0020 U	0.0020	0.0098				3450671
23'44'55'-HexaCB-(167)	ng/g	0.0796	0.0030	0.0098	0.0000300	0.00000239		3450671
33'44'55'-HexaCB-(169)	ng/g	0.0030 U	0.0030	0.0098	0.0300	0.0000900		3450671
22'33'44'5-HeptaCB-(170)	ng/g	0.459	0.0022	0.0098				3450671
HeptaCB-(171)+(173)	ng/g	0.141	0.0027	0.020				3450671
22'33'455'-HeptaCB-(172)	ng/g	0.0787	0.0027	0.0098				3450671
22'33'456'-HeptaCB-(174)	ng/g	0.505	0.0026	0.0098				3450671
22'33'45'6-HeptaCB-(175)	ng/g	0.0212	0.0021	0.0098				3450671
22'33'466'-HeptaCB-(176)	ng/g	0.0530	0.0016	0.0098				3450671
22'33'45'6-HeptaCB-(177)	ng/g	0.281	0.0027	0.0098				3450671
22'33'55'6-HeptaCB-(178)	ng/g	0.0877	0.0022	0.0098				3450671
22'33'566'-HeptaCB-(179)	ng/g	0.176	0.0015	0.0098				3450671

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Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na			TOXIC EQUIVALENCY	# of		
	Units	B22-SWSP-MH-020131029 Lab-Dup	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

HeptaCB-(180)+(193)	ng/g	1.07	0.0022	0.020				3450671
22'344'56-HeptaCB-(181)	ng/g	0.0024 U	0.0024	0.0098				3450671
22'344'56'-HeptaCB-(182)	ng/g	0.0021 U	0.0021	0.0098				3450671
22'344'56-HeptaCB-(183)	ng/g	0.292	0.0023	0.0098				3450671
22'344'66'-HeptaCB-(184)	ng/g	0.0014 U	0.0014	0.0098				3450671
22'3455'6-HeptaCB-(185)	ng/g	0.0024 U	0.0024	0.0098				3450671
22'34566'-HeptaCB-(186)	ng/g	0.0016 U	0.0016	0.0098				3450671
22'34'55'6-HeptaCB-(187)	ng/g	0.530	0.0020	0.0098				3450671
22'34'566'-HeptaCB-(188)	ng/g	0.0019 U	0.0019	0.0098				3450671
233'44'55'-HeptaCB-(189)	ng/g	0.0173	0.0026	0.0098	0.0000300	0.000000519		3450671
233'44'56-HeptaCB-(190)	ng/g	0.0816	0.0021	0.0098				3450671
233'44'56-HeptaCB-(191)	ng/g	0.0181	0.0020	0.0098				3450671
233'455'6-HeptaCB-(192)	ng/g	0.0021 U	0.0021	0.0098				3450671
22'33'44'55'-OctaCB-(194)	ng/g	0.160	0.0031	0.0098				3450671
22'33'44'56-OctaCB-(195)	ng/g	0.0699	0.0034	0.0098				3450671
22'33'44'56'-OctaCB-(196)	ng/g	0.103	0.0016	0.0098				3450671
22'33'44'66'OctaCB-(197)	ng/g	0.0089 J	0.0011	0.0098				3450671
OctaCB-(198)+(199)	ng/g	0.206	0.0016	0.020				3450671
22'33'4566'-OctaCB-(200)	ng/g	0.0248	0.0011	0.0098				3450671
22'33'45'66'-OctaCB-(201)	ng/g	0.0262	0.0011	0.0098				3450671
22'33'55'66'-OctaCB-(202)	ng/g	0.0436	0.0015	0.0098				3450671
22'344'55'6-OctaCB-(203)	ng/g	0.134	0.0015	0.0098				3450671
22'344'566'-OctaCB-(204)	ng/g	0.0011 U	0.0011	0.0098				3450671
233'44'55'6-OctaCB-(205)	ng/g	0.0099	0.0027	0.0098				3450671
22'33'44'55'6-NonaCB-(206)	ng/g	0.125	0.0029	0.0098				3450671
22'33'44'566'-NonaCB-(207)	ng/g	0.0138	0.0022	0.0098				3450671
22'33'455'66'-NonaCB-(208)	ng/g	0.0418	0.0026	0.0098				3450671
DecaCB-(209)	ng/g	0.127	0.0026	0.0098				3450671

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Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na				TOXIC EQUIVALENCY	# of	
	Units	B22-SWSP-MH-020131029 Lab-Dup	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Monochlorobiphenyl	ng/g	0.0116	0.0022	N/A			2	3450671
Dichlorobiphenyl	ng/g	0.545	0.0032	N/A			9	3450671
Trichlorobiphenyl	ng/g	3.87	0.0030	N/A			15	3450671
Tetrachlorobiphenyl	ng/g	5.78	0.0034	N/A			21	3450671
Pentachlorobiphenyl	ng/g	9.34	0.0037	N/A			21	3450671
Hexachlorobiphenyl	ng/g	9.90	0.0031	N/A			23	3450671
Heptachlorobiphenyl	ng/g	3.81	0.0027	N/A			15	3450671
Octachlorobiphenyl	ng/g	0.786	0.0034	N/A			10	3450671
Nonachlorobiphenyl	ng/g	0.181	0.0029	N/A			3	3450671
Decachlorobiphenyl	ng/g	0.127	0.0026	N/A			1	3450671
Total PCB	ng/g	34.4	N/A	N/A				3450671
TOTAL TOXIC EQUIVALENCY	ng/g					0.000625		
Surrogate Recovery (%)								
C13-2,44'-TriCB-(28)	%	114						3450671
C13-22'33'44'55'6-NonaCB-(206)	%	96						3450671
C13-22'33'44'5-HeptaCB-(170)	%	143						3450671
C13-22'33'455'66'-NonaCB-(208)	%	126						3450671
C13-22'33'55'66'-OctaCB-(202)	%	136						3450671
C13-22'33'55'6-HeptaCB-(178)	%	111						3450671
C13-22'344'55'-HeptaCB-(180)	%	147 (1)						3450671
C13-22'34'566'-HeptaCB-(188)	%	97						3450671
C13-22'44'66'-HexaCB-(155)	%	95						3450671
C13-22'466'-PentaCB-(104)	%	91						3450671
C13-22'66'-TetraCB-(54)	%	97						3450671
C13-22'6-TriCB-(19)	%	102						3450671
C13-22'-DiCB-(4)	%	85						3450671
C13-233'44'55'6-OctaCB-(205)	%	105						3450671

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

(1) Result is within method acceptable criteria(25-150% recovery).

Maxxam Job #: B3J0865
 Report Date: 2013/12/31

Apex Laboratories
 Client Project #: A3K0014

SEMI-VOLATILE ORGANICS BY HRMS (SOIL)

Maxxam ID		TT9622						
Sampling Date		2013/10/29 11:00						
COC Number		na				TOXIC EQUIVALENCY	# of	
	Units	B22-SWSP-MH-020131029 Lab-Dup	EDL	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

C13-233'44'55'-HeptaCB-(189)	%	128						3450671
C13-233'44'-PentaCB-(105)	%	104						3450671
C13-233'55'-PentaCB-(111)	%	101						3450671
C13-23'44'55'-HexaCB-(167)	%	101						3450671
C13-2344'5-PentaCB-(114)	%	100						3450671
C13-23'44'5-PentaCB-(118)	%	106						3450671
C13-2'344'5-PentaCB-(123)	%	102						3450671
C13-2-MonoCB-(1)	%	81						3450671
C13-33'44'55'-HexaCB-(169)	%	64						3450671
C13-33'44'5-PentaCB-(126)	%	96						3450671
C13-33'44'-TetraCB-(77)	%	117						3450671
C13-344'5-TetraCB-(81)	%	119						3450671
C13-344'-TriCB-(37)	%	116						3450671
C13-44'-DiCB-(15)	%	121						3450671
C13-4-MonoCB-(3)	%	88						3450671
C13-DecaCB-(209)	%	82						3450671
C13-HexaCB-(156)+(157)	%	99						3450671

RDL = Reportable Detection Limit

EDL = Estimated Detection Limit

QC Batch = Quality Control Batch

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds



Success Through Science®

Maxxam Job #: B3J0865
Report Date: 2013/12/31

Apex Laboratories
Client Project #: A3K0014

Test Summary

Maxxam ID TT9622
Sample ID B22-SWSP-MH-020131029
Matrix Soil

Collected 2013/10/29
Shipped
Received 2013/11/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Dioxins/Furans in Soil (8290A)	HRMS/MS	3424985	2013/11/12	2013/11/17	Owen Cosby
Moisture	BAL	3413680	N/A	2013/11/06	Min Yang
PCB Congeners in Soil (1668A)	HRMS/MS	3450671	2013/12/04	2013/12/08	Cathy Xu

Maxxam ID TT9622 Dup
Sample ID B22-SWSP-MH-020131029
Matrix Soil

Collected 2013/10/29
Shipped
Received 2013/11/06

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PCB Congeners in Soil (1668A)	HRMS/MS	3450671	2013/12/04	2013/12/08	Cathy Xu

Maxxam Job #: B3J0865
Report Date: 2013/12/31

Apex Laboratories
Client Project #: A3K0014

Package 1	4.8°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Revised report (2013/12/31): Homologs reported as per client's request.

Results relate only to the items tested.

Apex Laboratories
 Attention: Philip Nerenberg
 Client Project #: A3K0014
 P.O. #:
 Site Location:

Quality Assurance Report
 Maxxam Job Number: GB3J0865

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3413680 THT	RPD - Sample/Sample Dup	Moisture	2013/11/06	1.6		%	20
3424985 OBC	Matrix Spike	C13-1234678 HeptaCDD	2013/11/16	55	%	40 - 135	
	Matrix Spike DUP	C13-1234678 HeptaCDD	2013/11/16	54	%	40 - 135	
	Matrix Spike	C13-1234678 HeptaCDF	2013/11/16	62	%	40 - 135	
	Matrix Spike DUP	C13-1234678 HeptaCDF	2013/11/16	60	%	40 - 135	
	Matrix Spike	C13-123478 HexaCDF	2013/11/16	52	%	40 - 135	
	Matrix Spike DUP	C13-123478 HexaCDF	2013/11/16	51	%	40 - 135	
	Matrix Spike	C13-123678 HexaCDD	2013/11/16	43	%	40 - 135	
	Matrix Spike DUP	C13-123678 HexaCDD	2013/11/16	43	%	40 - 135	
	Matrix Spike	C13-12378 PentaCDD	2013/11/16	49	%	40 - 135	
	Matrix Spike DUP	C13-12378 PentaCDD	2013/11/16	48	%	40 - 135	
	Matrix Spike	C13-12378 PentaCDF	2013/11/16	51	%	40 - 135	
	Matrix Spike DUP	C13-12378 PentaCDF	2013/11/16	51	%	40 - 135	
	Matrix Spike	C13-2378 TetraCDD	2013/11/16	38 (1)	%	40 - 135	
	Matrix Spike DUP	C13-2378 TetraCDD	2013/11/16	37 (1)	%	40 - 135	
	Matrix Spike	C13-2378 TetraCDF	2013/11/16	53	%	40 - 135	
	Matrix Spike DUP	C13-2378 TetraCDF	2013/11/16	51	%	40 - 135	
	Matrix Spike	C13-OCDD	2013/11/16	49	%	40 - 135	
	Matrix Spike DUP	C13-OCDD	2013/11/16	50	%	40 - 135	
	Matrix Spike	2,3,7,8-Tetra CDD	2013/11/16	107	%	80 - 140	
	Matrix Spike DUP	2,3,7,8-Tetra CDD	2013/11/16	105	%	80 - 140	
	MS/MSD RPD	2,3,7,8-Tetra CDD	2013/11/16	1.9		%	25
	Matrix Spike	1,2,3,7,8-Penta CDD	2013/11/16	99	%	80 - 140	
	Matrix Spike DUP	1,2,3,7,8-Penta CDD	2013/11/16	103	%	80 - 140	
	MS/MSD RPD	1,2,3,7,8-Penta CDD	2013/11/16	4.0		%	25
	Matrix Spike	1,2,3,4,7,8-Hexa CDD	2013/11/16	109	%	80 - 140	
	Matrix Spike DUP	1,2,3,4,7,8-Hexa CDD	2013/11/16	109	%	80 - 140	
	MS/MSD RPD	1,2,3,4,7,8-Hexa CDD	2013/11/16	0		%	25
	Matrix Spike	1,2,3,6,7,8-Hexa CDD	2013/11/16	99	%	80 - 140	
	Matrix Spike DUP	1,2,3,6,7,8-Hexa CDD	2013/11/16	95	%	80 - 140	
	MS/MSD RPD	1,2,3,6,7,8-Hexa CDD	2013/11/16	4.1		%	25
	Matrix Spike	1,2,3,7,8,9-Hexa CDD	2013/11/16	109	%	80 - 140	
	Matrix Spike DUP	1,2,3,7,8,9-Hexa CDD	2013/11/16	103	%	80 - 140	
	MS/MSD RPD	1,2,3,7,8,9-Hexa CDD	2013/11/16	5.7		%	25
	Matrix Spike	1,2,3,4,6,7,8-Hepta CDD	2013/11/16	175 (2)	%	80 - 140	
	Matrix Spike DUP	1,2,3,4,6,7,8-Hepta CDD	2013/11/16	93	%	80 - 140	
	MS/MSD RPD	1,2,3,4,6,7,8-Hepta CDD	2013/11/16	61.2 (3)		%	25
	Matrix Spike	Octa CDD	2013/11/16	574 (2)	%	80 - 140	
	Matrix Spike DUP	Octa CDD	2013/11/16	71 (4)	%	80 - 140	
	MS/MSD RPD	Octa CDD	2013/11/16	156 (4)		%	25
	Matrix Spike	Total Tetra CDD	2013/11/16	131	%	N/A	
	Matrix Spike DUP	Total Tetra CDD	2013/11/16	127	%	N/A	
	MS/MSD RPD	Total Tetra CDD	2013/11/16	3.2		%	25
	Matrix Spike	Total Penta CDD	2013/11/16	123	%	N/A	
	Matrix Spike DUP	Total Penta CDD	2013/11/16	127	%	N/A	
	MS/MSD RPD	Total Penta CDD	2013/11/16	3.3		%	25
	Matrix Spike	Total Hexa CDD	2013/11/16	411	%	N/A	
	Matrix Spike DUP	Total Hexa CDD	2013/11/16	397	%	N/A	
	MS/MSD RPD	Total Hexa CDD	2013/11/16	3.5		%	25
	Matrix Spike	Total Hepta CDD	2013/11/16	456	%	N/A	
	Matrix Spike DUP	Total Hepta CDD	2013/11/16	354	%	N/A	
	MS/MSD RPD	Total Hepta CDD	2013/11/16	25.0		%	25
	Matrix Spike	2,3,7,8-Tetra CDF	2013/11/16	70 (4)	%	80 - 140	

Apex Laboratories
 Attention: Philip Nerenberg
 Client Project #: A3K0014
 P.O. #:
 Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB3J0865

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3424985 OBC	Matrix Spike DUP	2,3,7,8-Tetra CDF	2013/11/16		72 (4)	%	80 - 140
	MS/MSD RPD	2,3,7,8-Tetra CDF	2013/11/16	2.8 (4)		%	25
	Matrix Spike	1,2,3,7,8-Penta CDF	2013/11/16		93	%	80 - 140
	Matrix Spike DUP	1,2,3,7,8-Penta CDF	2013/11/16		95	%	80 - 140
	MS/MSD RPD	1,2,3,7,8-Penta CDF	2013/11/16	2.1		%	25
	Matrix Spike	2,3,4,7,8-Penta CDF	2013/11/16		90	%	80 - 140
	Matrix Spike DUP	2,3,4,7,8-Penta CDF	2013/11/16		89	%	80 - 140
	MS/MSD RPD	2,3,4,7,8-Penta CDF	2013/11/16	1.1		%	25
	Matrix Spike	1,2,3,4,7,8-Hexa CDF	2013/11/16		90	%	80 - 140
	Matrix Spike DUP	1,2,3,4,7,8-Hexa CDF	2013/11/16		88	%	80 - 140
	MS/MSD RPD	1,2,3,4,7,8-Hexa CDF	2013/11/16	2.2		%	25
	Matrix Spike	1,2,3,6,7,8-Hexa CDF	2013/11/16		91	%	80 - 140
	Matrix Spike DUP	1,2,3,6,7,8-Hexa CDF	2013/11/16		89	%	80 - 140
	MS/MSD RPD	1,2,3,6,7,8-Hexa CDF	2013/11/16	2.2		%	25
	Matrix Spike	2,3,4,6,7,8-Hexa CDF	2013/11/16		78 (4)	%	80 - 140
	Matrix Spike DUP	2,3,4,6,7,8-Hexa CDF	2013/11/16		86	%	80 - 140
	MS/MSD RPD	2,3,4,6,7,8-Hexa CDF	2013/11/16	9.8		%	25
	Matrix Spike	1,2,3,7,8,9-Hexa CDF	2013/11/16		91	%	80 - 140
	Matrix Spike DUP	1,2,3,7,8,9-Hexa CDF	2013/11/16		91	%	80 - 140
	MS/MSD RPD	1,2,3,7,8,9-Hexa CDF	2013/11/16	0		%	25
	Matrix Spike	1,2,3,4,6,7,8-Hepta CDF	2013/11/16		91	%	80 - 140
	Matrix Spike DUP	1,2,3,4,6,7,8-Hepta CDF	2013/11/16		84	%	80 - 140
	MS/MSD RPD	1,2,3,4,6,7,8-Hepta CDF	2013/11/16	8.0		%	25
	Matrix Spike	1,2,3,4,7,8,9-Hepta CDF	2013/11/16		84	%	80 - 140
	Matrix Spike DUP	1,2,3,4,7,8,9-Hepta CDF	2013/11/16		85	%	80 - 140
	MS/MSD RPD	1,2,3,4,7,8,9-Hepta CDF	2013/11/16	1.2		%	25
	Matrix Spike	Octa CDF	2013/11/16		118	%	80 - 140
	Matrix Spike DUP	Octa CDF	2013/11/16		97	%	80 - 140
	MS/MSD RPD	Octa CDF	2013/11/16	19.5		%	25
	Matrix Spike	Total Tetra CDF	2013/11/16		88	%	N/A
	Matrix Spike DUP	Total Tetra CDF	2013/11/16		89	%	N/A
	MS/MSD RPD	Total Tetra CDF	2013/11/16	1.2		%	25
	Matrix Spike	Total Penta CDF	2013/11/16		226	%	N/A
	Matrix Spike DUP	Total Penta CDF	2013/11/16		225	%	N/A
	MS/MSD RPD	Total Penta CDF	2013/11/16	0.2		%	25
	Matrix Spike	Total Hexa CDF	2013/11/16		436	%	N/A
	Matrix Spike DUP	Total Hexa CDF	2013/11/16		438	%	N/A
	MS/MSD RPD	Total Hexa CDF	2013/11/16	0.6		%	25
	Matrix Spike	Total Hepta CDF	2013/11/16		260	%	N/A
	Matrix Spike DUP	Total Hepta CDF	2013/11/16		251	%	N/A
	MS/MSD RPD	Total Hepta CDF	2013/11/16	3.5		%	25
	Spiked Blank	C13-1234678 HeptaCDD	2013/11/16		124	%	40 - 135
		C13-1234678 HeptaCDF	2013/11/16		129	%	40 - 135
		C13-123478 HexaCDF	2013/11/16		101	%	40 - 135
		C13-123678 HexaCDD	2013/11/16		84	%	40 - 135
		C13-12378 PentaCDD	2013/11/16		95	%	40 - 135
		C13-12378 PentaCDF	2013/11/16		100	%	40 - 135
		C13-2378 TetraCDD	2013/11/16		67	%	40 - 135
		C13-2378 TetraCDF	2013/11/16		109	%	40 - 135
		C13-OCDD	2013/11/16		128	%	40 - 135
		2,3,7,8-Tetra CDD	2013/11/16		95	%	80 - 140
		1,2,3,7,8-Penta CDD	2013/11/16		102	%	80 - 140
		1,2,3,4,7,8-Hexa CDD	2013/11/16		103	%	80 - 140
		1,2,3,6,7,8-Hexa CDD	2013/11/16		99	%	80 - 140
		1,2,3,7,8,9-Hexa CDD	2013/11/16		116	%	80 - 140

Apex Laboratories
 Attention: Philip Nerenberg
 Client Project #: A3K0014
 P.O. #:
 Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB3J0865

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3424985 OBC	Spiked Blank	1,2,3,4,6,7,8-Hepta CDD	2013/11/16	100	%	80 - 140	
		Octa CDD	2013/11/16	99	%	80 - 140	
		2,3,7,8-Tetra CDF	2013/11/16	94	%	80 - 140	
		1,2,3,7,8-Penta CDF	2013/11/16	104	%	80 - 140	
		2,3,4,7,8-Penta CDF	2013/11/16	105	%	80 - 140	
		1,2,3,4,7,8-Hexa CDF	2013/11/16	104	%	80 - 140	
		1,2,3,6,7,8-Hexa CDF	2013/11/16	98	%	80 - 140	
		2,3,4,6,7,8-Hexa CDF	2013/11/16	103	%	80 - 140	
		1,2,3,7,8,9-Hexa CDF	2013/11/16	113	%	80 - 140	
		1,2,3,4,6,7,8-Hepta CDF	2013/11/16	95	%	80 - 140	
		1,2,3,4,7,8,9-Hepta CDF	2013/11/16	110	%	80 - 140	
		Octa CDF	2013/11/16	101	%	80 - 140	
		C13-1234678 HeptaCDD	2013/11/16	118	%	40 - 135	
	Method Blank	C13-1234678 HeptaCDF	2013/11/16	55	%	40 - 135	
		C13-123478 HexaCDF	2013/11/16	51	%	40 - 135	
		C13-123678 HexaCDD	2013/11/16	50	%	40 - 135	
		C13-12378 PentaCDD	2013/11/16	96	%	40 - 135	
		C13-12378 PentaCDF	2013/11/16	99	%	40 - 135	
		C13-2378 TetraCDD	2013/11/16	80	%	40 - 135	
		C13-2378 TetraCDF	2013/11/16	122	%	40 - 135	
		C13-OCDD	2013/11/16	105	%	40 - 135	
		2,3,7,8-Tetra CDD	2013/11/16	0.099 U, EDL=0.099	pg/g		
		1,2,3,7,8-Penta CDD	2013/11/16	0.10 U, EDL=0.10	pg/g		
		1,2,3,4,7,8-Hexa CDD	2013/11/16	0.11 U, EDL=0.11	pg/g		
		1,2,3,6,7,8-Hexa CDD	2013/11/16	0.11 U, EDL=0.11	pg/g		
3450671 CXU	Spiked Blank	1,2,3,7,8,9-Hexa CDD	2013/11/16	0.10 U, EDL=0.10	pg/g		
		1,2,3,4,6,7,8-Hepta CDD	2013/11/16	0.10 U, EDL=0.10	pg/g		
		Octa CDD	2013/11/16	0.78 J, EDL=0.11	pg/g		
		Total Tetra CDD	2013/11/16	0.47 U, EDL=0.47 (5)	pg/g		
		Total Penta CDD	2013/11/16	0.21 U, EDL=0.21 (5)	pg/g		
		Total Hexa CDD	2013/11/16	0.35 U, EDL=0.35 (5)	pg/g		
		Total Hepta CDD	2013/11/16	0.10 U, EDL=0.10	pg/g		
		2,3,7,8-Tetra CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		1,2,3,7,8-Penta CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		2,3,4,7,8-Penta CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		1,2,3,4,7,8-Hexa CDF	2013/11/16	0.095 U, EDL=0.095	pg/g		
		1,2,3,6,7,8-Hexa CDF	2013/11/16	0.094 U, EDL=0.094	pg/g		
		2,3,4,6,7,8-Hexa CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		1,2,3,7,8,9-Hexa CDF	2013/11/16	0.12 U, EDL=0.12	pg/g		
		1,2,3,4,6,7,8-Hepta CDF	2013/11/16	0.090 U, EDL=0.090	pg/g		
		1,2,3,4,7,8,9-Hepta CDF	2013/11/16	0.12 U, EDL=0.12	pg/g		
		Octa CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		Total Tetra CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		Total Penta CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		Total Hexa CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		Total Hepta CDF	2013/11/16	0.10 U, EDL=0.10	pg/g		
		C13-2,44'-TriCB-(28)	2013/12/08	77	%	30 - 135	
		C13-22'33'44'55'6-NonaCB-(206)	2013/12/08	99	%	25 - 150	
		C13-22'33'44'5-HeptaCB-(170)	2013/12/08	99	%	25 - 150	
		C13-22'33'455'66'-NonaCB-(208)	2013/12/08	100	%	25 - 150	
		C13-22'33'55'66'-OctaCB-(202)	2013/12/08	97	%	25 - 150	
		C13-22'33'55'6-HeptaCB-(178)	2013/12/08	110	%	30 - 135	
		C13-22'344'55'-HeptaCB-(180)	2013/12/08	106	%	30 - 135	
		C13-22'34'566'-HeptaCB-(188)	2013/12/08	90	%	25 - 150	
		C13-22'44'66'-HexaCB-(155)	2013/12/08	72	%	25 - 150	

Apex Laboratories
 Attention: Philip Nerenberg
 Client Project #: A3K0014
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 Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: GB3J0865

QA/QC			Date Analyzed	Value	%Recovery	Units	QC Limits
Batch			yyyy/mm/dd				
Num Init	QC Type	Parameter					
3450671	CXU	Spiked Blank	C13-22'466'-PentaCB-(104)	2013/12/08	57	%	25 - 150
			C13-22'66'-TetraCB-(54)	2013/12/08	52	%	25 - 150
			C13-22'6-TriCB-(19)	2013/12/08	50	%	25 - 150
			C13-22'-DiCB-(4)	2013/12/08	39	%	25 - 150
			C13-233'44'55'6-OctaCB-(205)	2013/12/08	100	%	25 - 150
			C13-233'44'55'-HeptaCB-(189)	2013/12/08	109	%	25 - 150
			C13-233'44'-PentaCB-(105)	2013/12/08	96	%	25 - 150
			C13-233'55'-PentaCB-(111)	2013/12/08	91	%	30 - 135
			C13-23'44'55'-HexaCB-(167)	2013/12/08	98	%	25 - 150
			C13-2344'5-PentaCB-(114)	2013/12/08	89	%	25 - 150
			C13-23'44'5-PentaCB-(118)	2013/12/08	91	%	25 - 150
			C13-2'344'5-PentaCB-(123)	2013/12/08	93	%	25 - 150
			C13-2-MonoCB-(1)	2013/12/08	44	%	15 - 150
			C13-33'44'55'-HexaCB-(169)	2013/12/08	86	%	25 - 150
			C13-33'44'5-PentaCB-(126)	2013/12/08	97	%	25 - 150
			C13-33'44'-TetraCB-(77)	2013/12/08	106	%	25 - 150
			C13-344'5-TetraCB-(81)	2013/12/08	102	%	25 - 150
			C13-344'-TriCB-(37)	2013/12/08	82	%	25 - 150
			C13-44'-DiCB-(15)	2013/12/08	70	%	25 - 150
			C13-4-MonoCB-(3)	2013/12/08	47	%	15 - 150
			C13-DecaCB-(209)	2013/12/08	83	%	25 - 150
			C13-HexaCB-(156)+(157)	2013/12/08	97	%	25 - 150
			2-MonoCB-(1)	2013/12/08	102	%	50 - 150
			4-MonoCB-(3)	2013/12/08	96	%	50 - 150
			22'-DiCB-(4)	2013/12/08	103	%	50 - 150
			4,4'-DiCB-(15)	2013/12/08	91	%	50 - 150
			22'6-TriCB-(19)	2013/12/08	101	%	50 - 150
			235-TriCB-(23)	2013/12/08	87	%	50 - 150
			23'5'-TriCB-(34)	2013/12/08	96	%	50 - 150
			344'-TriCB-(37)	2013/12/08	92	%	50 - 150
			22'66'-TetraCB-(54)	2013/12/08	99	%	50 - 150
			33'44'-TetraCB-(77)	2013/12/08	93	%	50 - 150
			344'5-TetraCB-(81)	2013/12/08	93	%	50 - 150
			22'466'-PentaCB-(104)	2013/12/08	107	%	50 - 150
			233'44'-PentaCB-(105)	2013/12/08	95	%	50 - 150
			2344'5-PentaCB-(114)	2013/12/08	95	%	50 - 150
			23'44'5-PentaCB-(118)	2013/12/08	95	%	50 - 150
			23'44'5-PentaCB-(123)	2013/12/08	95	%	50 - 150
			33'44'5-PentaCB-(126)	2013/12/08	94	%	50 - 150
			22'44'66'-HexaCB-(155)	2013/12/08	100	%	50 - 150
			HexaCB-(156)+(157)	2013/12/08	95	%	50 - 150
			23'44'55'-HexaCB-(167)	2013/12/08	93	%	50 - 150
			33'44'55'-HexaCB-(169)	2013/12/08	94	%	50 - 150
			22'33'44'5-HeptaCB-(170)	2013/12/08	103	%	50 - 150
			HeptaCB-(180)+(193)	2013/12/08	86	%	50 - 150
			22'344'56'-HeptaCB-(182)	2013/12/08	90	%	50 - 150
			22'34'55'6-HeptaCB-(187)	2013/12/08	85	%	50 - 150
			22'34'566'-HeptaCB-(188)	2013/12/08	92	%	50 - 150
			233'44'55'-HeptaCB-(189)	2013/12/08	89	%	50 - 150
			22'33'55'66'-OctaCB-(202)	2013/12/08	100	%	50 - 150
			233'44'55'6-OctaCB-(205)	2013/12/08	99	%	50 - 150
			22'33'44'55'6-NonaCB-(206)	2013/12/08	98	%	50 - 150
			22'33'455'66'-NonaCB-(208)	2013/12/08	98	%	50 - 150
			DecaCB-(209)	2013/12/08	105	%	50 - 150
			C13-2,44'-TriCB-(28)	2013/12/08	104	%	30 - 135
Method Blank							

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3450671	CXU	Method Blank	2013/12/08	95	%	25 - 150	
		C13-22'33'44'55'6-NonaCB-(206)	2013/12/08	99	%	25 - 150	
		C13-22'33'44'5-HeptaCB-(170)	2013/12/08	99	%	25 - 150	
		C13-22'33'455'66'-NonaCB-(208)	2013/12/08	99	%	25 - 150	
		C13-22'33'55'66'-OctaCB-(202)	2013/12/08	96	%	25 - 150	
		C13-22'33'55'6-HeptaCB-(178)	2013/12/08	115	%	30 - 135	
		C13-22'344'55'-HeptaCB-(180)	2013/12/08	99	%	30 - 135	
		C13-22'34'566'-HeptaCB-(188)	2013/12/08	91	%	25 - 150	
		C13-22'44'66'-HexaCB-(155)	2013/12/08	84	%	25 - 150	
		C13-22'466'-PentaCB-(104)	2013/12/08	79	%	25 - 150	
		C13-22'66'-TetraCB-(54)	2013/12/08	85	%	25 - 150	
		C13-22'6-TriCB-(19)	2013/12/08	86	%	25 - 150	
		C13-22'-DiCB-(4)	2013/12/08	68	%	25 - 150	
		C13-233'44'55'6-OctaCB-(205)	2013/12/08	98	%	25 - 150	
		C13-233'44'55'-HeptaCB-(189)	2013/12/08	100	%	25 - 150	
		C13-233'44'-PentaCB-(105)	2013/12/08	100	%	25 - 150	
		C13-233'55'-PentaCB-(111)	2013/12/08	100	%	30 - 135	
		C13-23'44'55'-HexaCB-(167)	2013/12/08	96	%	25 - 150	
		C13-2344'5-PentaCB-(114)	2013/12/08	98	%	25 - 150	
		C13-23'44'5-PentaCB-(118)	2013/12/08	99	%	25 - 150	
		C13-2'344'5-PentaCB-(123)	2013/12/08	97	%	25 - 150	
		C13-2-MonoCB-(1)	2013/12/08	69	%	15 - 150	
		C13-33'44'55'-HexaCB-(169)	2013/12/08	91	%	25 - 150	
		C13-33'44'5-PentaCB-(126)	2013/12/08	102	%	25 - 150	
		C13-33'44'-TetraCB-(77)	2013/12/08	115	%	25 - 150	
		C13-344'5-TetraCB-(81)	2013/12/08	112	%	25 - 150	
		C13-344'-TriCB-(37)	2013/12/08	107	%	25 - 150	
		C13-44'-DiCB-(15)	2013/12/08	101	%	25 - 150	
		C13-4-MonoCB-(3)	2013/12/08	72	%	15 - 150	
		C13-DecaCB-(209)	2013/12/08	83	%	25 - 150	
		C13-HexaCB-(156)+(157)	2013/12/08	95	%	25 - 150	
		2-MonoCB-(1)	2013/12/08	0.0012 U, EDL=0.0012	ng/g		
		3-MonoCB-(2)	2013/12/08	0.0010 U, EDL=0.0010	ng/g		
		4-MonoCB-(3)	2013/12/08	0.0011 U, EDL=0.0011	ng/g		
		22'-DiCB-(4)	2013/12/08	0.00087 U, EDL=0.00087	ng/g		
		2,3-DiCB-(5)	2013/12/08	0.0018 U, EDL=0.0018	ng/g		
		2,3'-DiCB-(6)	2013/12/08	0.0015 U, EDL=0.0015	ng/g		
		2,4-DiCB-(7)	2013/12/08	0.0015 U, EDL=0.0015	ng/g		
		2,4'-DiCB-(8)	2013/12/08	0.0013 U, EDL=0.0013	ng/g		
		2,5-DiCB-(9)	2013/12/08	0.0015 U, EDL=0.0015	ng/g		
		2,6-DiCB-(10)	2013/12/08	0.00066 U, EDL=0.00066	ng/g		
		3,3'-DiCB-(11)	2013/12/08	0.0015 U, EDL=0.0015	ng/g		
		DiCB-(12)+(13)	2013/12/08	0.0016 U, EDL=0.0016	ng/g		
		3,5-DiCB-(14)	2013/12/08	0.0015 U, EDL=0.0015	ng/g		
		4,4'-DiCB-(15)	2013/12/08	0.0025 U, EDL=0.0025	ng/g		
		22'3-TriCB-(16)	2013/12/08	0.0026 U, EDL=0.0026	ng/g		
		22'4-TriCB-(17)	2013/12/08	0.0026 U, EDL=0.0026	ng/g		
		TriCB-(18)+(30)	2013/12/08	0.0021 U, EDL=0.0021	ng/g		
		22'6-TriCB-(19)	2013/12/08	0.0023 U, EDL=0.0023	ng/g		
		TriCB-(20) + (28)	2013/12/08	0.0017 U, EDL=0.0017	ng/g		
		TriCB-(21)+(33)	2013/12/08	0.0017 U, EDL=0.0017	ng/g		
		234'-TriCB-(22)	2013/12/08	0.0017 U, EDL=0.0017	ng/g		
		235'-TriCB-(23)	2013/12/08	0.0017 U, EDL=0.0017	ng/g		
		236'-TriCB-(24)	2013/12/08	0.0020 U, EDL=0.0020	ng/g		
		23'4-TriCB-(25)	2013/12/08	0.0017 U, EDL=0.0017	ng/g		
		TriCB-(26)+(29)	2013/12/08	0.0017 U, EDL=0.0017	ng/g		

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3450671	CXU	Method Blank	2013/12/08	0.0018 U, EDL=0.0018		ng/g	
		23'6-TriCB-(27)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		24'5-TriCB-(31)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		24'6-TriCB-(32)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		23'5'-TriCB-(34)	2013/12/08	0.0018 U, EDL=0.0018		ng/g	
		33'4-TriCB-(35)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		33'5-TriCB-(36)	2013/12/08	0.0015 U, EDL=0.0015		ng/g	
		344'-TriCB-(37)	2013/12/08	0.0020 U, EDL=0.0020		ng/g	
		345-TriCB-(38)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		34'5-TriCB-(39)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		TetraCB-(40)+(41)+(71)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		22'34'-TetraCB-(42)	2013/12/08	0.0014 U, EDL=0.0014		ng/g	
		22'35'-TetraCB-(43)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		TetraCB-(44)+(47)+(65)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		TetraCB-(45)+(51)	2013/12/08	0.0011 U, EDL=0.0011		ng/g	
		22'36'-TetraCB-(46)	2013/12/08	0.0013 U, EDL=0.0013		ng/g	
		22'45'-TetraCB-(48)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		TetraCB-(49)+TetraCB-(69)	2013/12/08	0.00096 U, EDL=0.00096		ng/g	
		TetraCB-(50)+(53)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		22'55'-TetraCB-(52)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		22'66'-TetraCB-(54)	2013/12/08	0.00013 U, EDL=0.00013		ng/g	
		233'4-TetraCB-(55)	2013/12/08	0.00078 U, EDL=0.00078		ng/g	
		233'4'-Tetra CB(56)	2013/12/08	0.00081 U, EDL=0.00081		ng/g	
		233'5-TetraCB-(57)	2013/12/08	0.00071 U, EDL=0.00071		ng/g	
		233'5'-TetraCB-(58)	2013/12/08	0.00074 U, EDL=0.00074		ng/g	
		TetraCB-(59)+(62)+(75)	2013/12/08	0.00078 U, EDL=0.00078		ng/g	
		2344'-TetraCB -(60)	2013/12/08	0.00073 U, EDL=0.00073		ng/g	
		TetraCB-(61)+(70)+(74)+(76)	2013/12/08	0.00073 U, EDL=0.00073		ng/g	
		234'5-TetraCB-(63)	2013/12/08	0.00068 U, EDL=0.00068		ng/g	
		234'6-TetraCB-(64)	2013/12/08	0.00088 U, EDL=0.00088		ng/g	
		23'44'-TetraCB-(66)	2013/12/08	0.00065 U, EDL=0.00065		ng/g	
		23'45-TetraCB-(67)	2013/12/08	0.00065 U, EDL=0.00065		ng/g	
		23'45'-TetraCB-(68)	2013/12/08	0.00064 U, EDL=0.00064		ng/g	
		23'55'-TetraCB-(72)	2013/12/08	0.00068 U, EDL=0.00068		ng/g	
		23'5'6-TetraCB-(73)	2013/12/08	0.00073 U, EDL=0.00073		ng/g	
		33'44'-TetraCB-(77)	2013/12/08	0.00079 U, EDL=0.00079		ng/g	
		33'45-TetraCB-(78)	2013/12/08	0.00072 U, EDL=0.00072		ng/g	
		33'45'-TetraCB(79)	2013/12/08	0.00064 U, EDL=0.00064		ng/g	
		33'55'-TetraCB-(80)	2013/12/08	0.00064 U, EDL=0.00064		ng/g	
		344'5-TetraCB-(81)	2013/12/08	0.00082 U, EDL=0.00082		ng/g	
		22'33'4-PentaCB-(82)	2013/12/08	0.0024 U, EDL=0.0024		ng/g	
		PentaCB-(83)+(99)	2013/12/08	0.0023 U, EDL=0.0023		ng/g	
		22'33'6-PentaCB-(84)	2013/12/08	0.0027 U, EDL=0.0027		ng/g	
		PentaCB-(85)+(116)+(117)	2013/12/08	0.0018 U, EDL=0.0018		ng/g	
		PentaCB-(86)(87)(97)(109)(119)(125)	2013/12/08	0.0019 U, EDL=0.0019		ng/g	
		PentaCB-(88)+(91)	2013/12/08	0.0022 U, EDL=0.0022		ng/g	
		22'346'-PentaCB-(89)	2013/12/08	0.0024 U, EDL=0.0024		ng/g	
		PentaCB-(90)+(101)+(113)	2013/12/08	0.0019 U, EDL=0.0019		ng/g	
		22'355'-PentaCB-(92)	2013/12/08	0.0022 U, EDL=0.0022		ng/g	
		PentaCB-(93)+(98)+(100)+(102)	2013/12/08	0.0023 U, EDL=0.0023		ng/g	
		22'356'-PentaCB-(94)	2013/12/08	0.0024 U, EDL=0.0024		ng/g	
		22'35'6-PentaCB-(95)	2013/12/08	0.0022 U, EDL=0.0022		ng/g	
		22'366'-PentaCB-(96)	2013/12/08	0.00018 U, EDL=0.00018		ng/g	
		22'45'6-PentaCB-(103)	2013/12/08	0.0020 U, EDL=0.0020		ng/g	
		22'466'-PentaCB-(104)	2013/12/08	0.00018 U, EDL=0.00018		ng/g	
		233'44'-PentaCB-(105)	2013/12/08	0.0011 U, EDL=0.0011		ng/g	

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3450671	CXU	Method Blank	2013/12/08	0.00093 U, EDL=0.00093		ng/g	
		233'45'-PentaCB-(106)	2013/12/08	0.00091 U, EDL=0.00091		ng/g	
		233'45'-PentaCB-(107)	2013/12/08	0.00092 U, EDL=0.00092		ng/g	
		PentaCB-(108)+(124)	2013/12/08	0.0018 U, EDL=0.0018		ng/g	
		PentaCB-(110)+(115)	2013/12/08	0.0015 U, EDL=0.0015		ng/g	
		233'55'-PentaCB-(111)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		233'56'-PentaCB-(112)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		2344'5'-PentaCB-(114)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		23'44'5'-PentaCB-(118)	2013/12/08	0.0015 U, EDL=0.0015		ng/g	
		23'455'-PentaCB-(120)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		23'456'-PentaCB-(121)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		233'45'-PentaCB-(122)	2013/12/08	0.0011 U, EDL=0.0011		ng/g	
		23'44'5'-PentaCB-(123)	2013/12/08	0.0010 U, EDL=0.0010		ng/g	
		33'44'5'-PentaCB-(126)	2013/12/08	0.00094 U, EDL=0.00094		ng/g	
		33'455'-PentaCB-(127)	2013/12/08	0.0019 U, EDL=0.0019		ng/g	
		HexaCB-(128)+(166)	2013/12/08	0.0021 U, EDL=0.0021		ng/g	
		HexaCB-(129)+(138)+(163)	2013/12/08	0.0024 U, EDL=0.0024		ng/g	
		22'33'45'-HexaCB-(130)	2013/12/08	0.0026 U, EDL=0.0026		ng/g	
		22'33'46'-HexaCB-(131)	2013/12/08	0.0023 U, EDL=0.0023		ng/g	
		22'33'46'-HexaCB-(132)	2013/12/08	0.0022 U, EDL=0.0022		ng/g	
		22'33'55'-HexaCB-(133)	2013/12/08	0.0024 U, EDL=0.0024		ng/g	
		HexaCB-(134)+(143)	2013/12/08	0.00038 U, EDL=0.00038		ng/g	
		HexaCB-(135)+(151)	2013/12/08	0.00030 U, EDL=0.00030		ng/g	
		22'33'66'-HexaCB-(136)	2013/12/08	0.0022 U, EDL=0.0022		ng/g	
		22'344'5'-HexaCB-(137)	2013/12/08	0.0020 U, EDL=0.0020		ng/g	
		HexaCB-(139)+(140)	2013/12/08	0.0023 U, EDL=0.0023		ng/g	
		22'3455'-HexaCB-(141)	2013/12/08	0.00036 U, EDL=0.00036		ng/g	
		22'3456-HexaCB-(142)	2013/12/08	0.00030 U, EDL=0.00030		ng/g	
		22'3456'-HexaCB-(144)	2013/12/08	0.00028 U, EDL=0.00028		ng/g	
		22'3466'-HexaCB-(145)	2013/12/08	0.0019 U, EDL=0.0019		ng/g	
		22'34'55'-HexaCB-(146)	2013/12/08	0.00038 U, EDL=0.00038		ng/g	
		HexaCB-(147)+(149)	2013/12/08	0.00030 U, EDL=0.00030		ng/g	
		22'34'56'-HexaCB-(148)	2013/12/08	0.00023 U, EDL=0.00023		ng/g	
		22'34'66'-HexaCB-(150)	2013/12/08	0.00020 U, EDL=0.00020		ng/g	
		22'3566'-HexaCB-(152)	2013/12/08	0.0019 U, EDL=0.0019		ng/g	
		HexaCB-(153)+(168)	2013/12/08	0.00033 U, EDL=0.00033		ng/g	
		22'44'56'-HexaCB-(154)	2013/12/08	0.00020 U, EDL=0.00020		ng/g	
		22'44'66'-HexaCB-(155)	2013/12/08	0.00040 U, EDL=0.00040		ng/g	
		HexaCB-(156)+(157)	2013/12/08	0.00044 U, EDL=0.00044		ng/g	
		233'44'6'-HexaCB-(158)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		233'455'-HexaCB-(159)	2013/12/08	0.00039 U, EDL=0.00039		ng/g	
		233'456-HexaCB-(160)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		233'45'6-HexaCB-(161)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		233'4'55'-HexaCB-(162)	2013/12/08	0.00038 U, EDL=0.00038		ng/g	
		233'4'5'6-HexaCB-(164)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		233'55'6-HexaCB-(165)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		23'44'55'-HexaCB-(167)	2013/12/08	0.00042 U, EDL=0.00042		ng/g	
		33'44'55'-HexaCB-(169)	2013/12/08	0.00043 U, EDL=0.00043		ng/g	
		22'33'44'5-HeptaCB-(170)	2013/12/08	0.0015 U, EDL=0.0015		ng/g	
		HeptaCB-(171)+(173)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		22'33'455'-HeptaCB-(172)	2013/12/08	0.0018 U, EDL=0.0018		ng/g	
		22'33'456-HeptaCB-(174)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		22'33'45'6-HeptaCB-(175)	2013/12/08	0.00039 U, EDL=0.00039		ng/g	
		22'33'466'-HeptaCB-(176)	2013/12/08	0.00029 U, EDL=0.00029		ng/g	
		22'33'45'6-HeptaCB-(177)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		22'33'55'6-HeptaCB-(178)	2013/12/08	0.00041 U, EDL=0.00041		ng/g	

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3450671	CXU	Method Blank	2013/12/08	0.00028 U, EDL=0.00028		ng/g	
		HeptaCB-(180)+(193)	2013/12/08	0.0014 U, EDL=0.0014		ng/g	
		22'344'56-HeptaCB-(181)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		22'344'56'-HeptaCB-(182)	2013/12/08	0.00040 U, EDL=0.00040		ng/g	
		22'344'56'-HeptaCB-(183)	2013/12/08	0.0015 U, EDL=0.0015		ng/g	
		22'344'66'-HeptaCB-(184)	2013/12/08	0.00026 U, EDL=0.00026		ng/g	
		22'3455'6-HeptaCB-(185)	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		22'34566'-HeptaCB-(186)	2013/12/08	0.00030 U, EDL=0.00030		ng/g	
		22'34'55'6-HeptaCB-(187)	2013/12/08	0.00037 U, EDL=0.00037		ng/g	
		22'34'566'-HeptaCB-(188)	2013/12/08	0.00036 U, EDL=0.00036		ng/g	
		233'44'55'-HeptaCB-(189)	2013/12/08	0.0023 U, EDL=0.0023		ng/g	
		233'44'56-HeptaCB-(190)	2013/12/08	0.0014 U, EDL=0.0014		ng/g	
		233'44'56'-HeptaCB-(191)	2013/12/08	0.0013 U, EDL=0.0013		ng/g	
		233'455'6-HeptaCB-(192)	2013/12/08	0.0014 U, EDL=0.0014		ng/g	
		22'33'44'55'-OctaCB-(194)	2013/12/08	0.0019 U, EDL=0.0019		ng/g	
		22'33'44'56-OctaCB-(195)	2013/12/08	0.0021 U, EDL=0.0021		ng/g	
		22'33'44'56'-OctaCB-(196)	2013/12/08	0.0019 U, EDL=0.0019		ng/g	
		22'33'44'66'-OctaCB-(197)	2013/12/08	0.0013 U, EDL=0.0013		ng/g	
		OctaCB-(198)+(199)	2013/12/08	0.0018 U, EDL=0.0018		ng/g	
		22'33'4566'-OctaCB-(200)	2013/12/08	0.0013 U, EDL=0.0013		ng/g	
		22'33'45'66'-OctaCB-(201)	2013/12/08	0.0013 U, EDL=0.0013		ng/g	
		22'33'55'66'-OctaCB-(202)	2013/12/08	0.0018 U, EDL=0.0018		ng/g	
		22'344'55'6-OctaCB-(203)	2013/12/08	0.0018 U, EDL=0.0018		ng/g	
		22'344'566'-OctaCB-(204)	2013/12/08	0.0013 U, EDL=0.0013		ng/g	
		233'44'55'6-OctaCB-(205)	2013/12/08	0.0017 U, EDL=0.0017		ng/g	
		22'33'44'55'6-NonaCB-(206)	2013/12/08	0.00070 U, EDL=0.00070		ng/g	
		22'33'44'566'-NonaCB-(207)	2013/12/08	0.00052 U, EDL=0.00052		ng/g	
		22'33'455'66'-NonaCB-(208)	2013/12/08	0.00063 U, EDL=0.00063		ng/g	
		DecaCB-(209)	2013/12/08	0.0013 U, EDL=0.0013		ng/g	
		Monochlorobiphenyl	2013/12/08	0.0012 U, EDL=0.0012		ng/g	
		Dichlorobiphenyl	2013/12/08	0.0025 U, EDL=0.0025		ng/g	
		Trichlorobiphenyl	2013/12/08	0.0026 U, EDL=0.0026		ng/g	
		Tetrachlorobiphenyl	2013/12/08	0.0016 U, EDL=0.0016		ng/g	
		Pentachlorobiphenyl	2013/12/08	0.0027 U, EDL=0.0027		ng/g	
		Hexachlorobiphenyl	2013/12/08	0.0026 U, EDL=0.0026		ng/g	
		Heptachlorobiphenyl	2013/12/08	0.0023 U, EDL=0.0023		ng/g	
		Octachlorobiphenyl	2013/12/08	0.0021 U, EDL=0.0021		ng/g	
		Nonachlorobiphenyl	2013/12/08	0.00070 U, EDL=0.00070		ng/g	
		Decachlorobiphenyl	2013/12/08	0.0013 U, EDL=0.0013		ng/g	
		Total PCB	2013/12/08	0		ng/g	
RPD - Sample/Sample Dup	2-MonoCB-(1)	2013/12/08	NC		%	30	
	3-MonoCB-(2)	2013/12/08	NC		%	30	
	4-MonoCB-(3)	2013/12/08	NC		%	30	
	22'-DiCB-(4)	2013/12/08	NC (6)		%	30	
	2,3-DiCB-(5)	2013/12/08	NC		%	30	
	2,3'-DiCB-(6)	2013/12/08	NC		%	30	
	2,4-DiCB-(7)	2013/12/08	NC		%	30	
	2,4'-DiCB-(8)	2013/12/08	24.2		%	30	
	2,5-DiCB-(9)	2013/12/08	NC		%	30	
	2,6-DiCB-(10)	2013/12/08	NC		%	30	
	3,3'-DiCB-(11)	2013/12/08	NC		%	30	
	DiCB-(12)+(13)	2013/12/08	NC		%	30	
	3,5-DiCB-(14)	2013/12/08	NC		%	30	

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QA/QC			Date				
Batch			Analyzed				
Num	Init	QC Type	Parameter	yyyy/mm/dd	Value	%Recovery	Units
3450671	CXU	RPD - Sample/Sample Dup	4,4'-DiCB-(15)	2013/12/08	34.3 (6)	%	30
			22'3-TriCB-(16)	2013/12/08	37.1 (6)	%	30
			22'4-TriCB-(17)	2013/12/08	42.7 (6)	%	30
			TriCB-(18)+(30)	2013/12/08	37.9 (6)	%	30
			22'6-TriCB-(19)	2013/12/08	NC (6)	%	30
			TriCB-(20) + (28)	2013/12/08	33.8 (6)	%	30
			TriCB-(21)+(33)	2013/12/08	35.0 (6)	%	30
			234'-TriCB-(22)	2013/12/08	32.4 (6)	%	30
			235-TriCB-(23)	2013/12/08	NC	%	30
			236-TriCB-(24)	2013/12/08	NC	%	30
			23'4-TriCB-(25)	2013/12/08	NC (6)	%	30
			TriCB-(26)+(29)	2013/12/08	NC (6)	%	30
			23'6-TriCB-(27)	2013/12/08	NC	%	30
			24'5-TriCB-(31)	2013/12/08	34.8 (6)	%	30
			24'6-TriCB-(32)	2013/12/08	35.5 (6)	%	30
			23'5'-TriCB-(34)	2013/12/08	NC	%	30
			33'4-TriCB-(35)	2013/12/08	NC	%	30
			33'5-TriCB-(36)	2013/12/08	NC	%	30
			344'-TriCB-(37)	2013/12/08	38.0 (6)	%	30
			345-TriCB-(38)	2013/12/08	NC	%	30
			34'5-TriCB-(39)	2013/12/08	NC	%	30
			TetraCB-(40)+(41)+(71)	2013/12/08	32.4 (6)	%	30
			22'34'-TetraCB-(42)	2013/12/08	31.9 (6)	%	30
			22'35-TetraCB-(43)	2013/12/08	NC	%	30
			TetraCB-(44)+(47)+(65)	2013/12/08	15.9	%	30
			TetraCB-(45)+(51)	2013/12/08	41.2 (6)	%	30
			22'36'-TetraCB-(46)	2013/12/08	42.5 (6)	%	30
			22'45-TetraCB-(48)	2013/12/08	35.4 (6)	%	30
			TetraCB-(49)+TetraCB-(69)	2013/12/08	18.0	%	30
			TetraCB-(50)+(53)	2013/12/08	32.2 (6)	%	30
			22'55'-TetraCB-(52)	2013/12/08	2.4	%	30
			22'66'-TetraCB-(54)	2013/12/08	NC	%	30
			233'4-TetraCB-(55)	2013/12/08	NC	%	30
			233'4'-TetraCB-(56)	2013/12/08	24.5	%	30
			233'5-TetraCB-(57)	2013/12/08	NC	%	30
			233'5'-TetraCB-(58)	2013/12/08	NC	%	30
			TetraCB-(59)+(62)+(75)	2013/12/08	NC	%	30
			2344'-TetraCB -(60)	2013/12/08	25.9	%	30
			TetraCB-(61)+(70)+(74)+(76)	2013/12/08	0.9	%	30
			234'5-TetraCB-(63)	2013/12/08	NC	%	30
			234'6-TetraCB-(64)	2013/12/08	27.0	%	30
			23'44'-TetraCB-(66)	2013/12/08	12.0	%	30
			23'45-TetraCB-(67)	2013/12/08	NC	%	30
			23'45'-TetraCB-(68)	2013/12/08	NC	%	30
			23'55'-TetraCB-(72)	2013/12/08	NC	%	30
			23'5'6-TetraCB-(73)	2013/12/08	NC	%	30
			33'44'-TetraCB-(77)	2013/12/08	NC (6)	%	30
			33'45-TetraCB-(78)	2013/12/08	NC	%	30
			33'45'-TetraCB(79)	2013/12/08	NC	%	30
			33'55'-TetraCB-(80)	2013/12/08	NC	%	30
			344'5-TetraCB-(81)	2013/12/08	NC	%	30
			22'33'4-PentaCB-(82)	2013/12/08	8.1	%	30
			PentaCB-(83)+(99)	2013/12/08	16.7	%	30

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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3450671	CXU	RPD - Sample/Sample Dup					
		22'33'6-PentaCB-(84)	2013/12/08	8.8	%	30	
		PentaCB-(85)+(116)+(117)	2013/12/08	8.7	%	30	
		PentaCB-(86)(87)(97)(109)(119)(125)	2013/12/08	17.7	%	30	
		PentaCB-(88)+(91)	2013/12/08	4.2	%	30	
		22'346'-PentaCB-(89)	2013/12/08	NC	%	30	
		PentaCB-(90)+(101)+(113)	2013/12/08	16.3	%	30	
		22'355'-PentaCB-(92)	2013/12/08	14.3	%	30	
		PentaCB-(93)+(98)+(100)+(102)	2013/12/08	NC	%	30	
		22'356'-PentaCB-(94)	2013/12/08	NC	%	30	
		22'35'6-PentaCB-(95)	2013/12/08	8.9	%	30	
		22'366'-PentaCB-(96)	2013/12/08	NC	%	30	
		22'45'6-PentaCB-(103)	2013/12/08	NC	%	30	
		22'466'-PentaCB-(104)	2013/12/08	NC	%	30	
		233'44'-PentaCB-(105)	2013/12/08	15.9	%	30	
		233'45-PentaCB-(106)	2013/12/08	NC	%	30	
		233'4'5-PentaCB-(107)	2013/12/08	15.4	%	30	
		PentaCB-(108)+(124)	2013/12/08	NC	%	30	
		PentaCB-(110)+(115)	2013/12/08	9.0	%	30	
		233'55'-PentaCB-(111)	2013/12/08	NC	%	30	
		233'56-PentaCB-(112)	2013/12/08	NC	%	30	
		2344'5-PentaCB-(114)	2013/12/08	NC	%	30	
		23'44'5-PentaCB-(118)	2013/12/08	20.3	%	30	
		23'455'-PentaCB-(120)	2013/12/08	NC	%	30	
		23'45'6-PentaCB-(121)	2013/12/08	NC	%	30	
		233'4'5-PentaCB-(122)	2013/12/08	NC (5)	%	30	
		23'44'5'-PentaCB-(123)	2013/12/08	NC	%	30	
		33'44'5-PentaCB-(126)	2013/12/08	NC (5)	%	30	
		33'455'-PentaCB-(127)	2013/12/08	NC	%	30	
		HexaCB-(128)+(166)	2013/12/08	24.3	%	30	
		HexaCB-(129)+(138)+(163)	2013/12/08	14.0	%	30	
		22'33'45'-HexaCB-(130)	2013/12/08	16.5	%	30	
		22'33'46-HexaCB-(131)	2013/12/08	NC	%	30	
		22'33'46'-HexaCB-(132)	2013/12/08	15.0	%	30	
		22'33'55'-HexaCB-(133)	2013/12/08	NC	%	30	
		HexaCB-(134)+(143)	2013/12/08	5.4	%	30	
		HexaCB-(135)+(151)	2013/12/08	8.1	%	30	
		22'33'66'-HexaCB-(136)	2013/12/08	10.4	%	30	
		22'344'5-HexaCB-(137)	2013/12/08	18.4	%	30	
		HexaCB-(139)+(140)	2013/12/08	NC	%	30	
		22'3455'-HexaCB-(141)	2013/12/08	12.3	%	30	
		22'3456-HexaCB-(142)	2013/12/08	NC	%	30	
		22'345'6-HexaCB-(144)	2013/12/08	13.6	%	30	
		22'3466'-HexaCB-(145)	2013/12/08	NC	%	30	
		22'34'55'-HexaCB-(146)	2013/12/08	9.5	%	30	
		HexaCB-(147)+(149)	2013/12/08	10.2	%	30	
		22'34'56'-HexaCB-(148)	2013/12/08	NC	%	30	
		22'34'66'-HexaCB-(150)	2013/12/08	NC	%	30	
		22'3566'-HexaCB-(152)	2013/12/08	NC	%	30	
		HexaCB-(153)+(168)	2013/12/08	13.9	%	30	
		22'44'56'-HexaCB-(154)	2013/12/08	NC	%	30	
		22'44'66'-HexaCB-(155)	2013/12/08	18.1	%	30	
		HexaCB-(156)+(157)	2013/12/08	14.8	%	30	
		233'44'6-HexaCB-(158)	2013/12/08				

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QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
3450671	CXU	RPD - Sample/Sample					
	Dup	233'455'-HexaCB-(159)	2013/12/08	NC	%	30	
		233'456-HexaCB-(160)	2013/12/08	NC	%	30	
		233'456-HexaCB-(161)	2013/12/08	NC	%	30	
		233'4'55'-HexaCB-(162)	2013/12/08	NC	%	30	
		233'4'56-HexaCB-(164)	2013/12/08	11.1	%	30	
		233'55'6-HexaCB-(165)	2013/12/08	NC	%	30	
		23'44'55'-HexaCB-(167)	2013/12/08	7.2	%	30	
		33'44'55'-HexaCB-(169)	2013/12/08	NC	%	30	
		22'33'44'5-HeptaCB-(170)	2013/12/08	0.2	%	30	
		HeptaCB-(171)+(173)	2013/12/08	3.5	%	30	
		22'33'455'-HeptaCB-(172)	2013/12/08	3.6	%	30	
		22'33'456'-HeptaCB-(174)	2013/12/08	0.5	%	30	
		22'33'45'6-HeptaCB-(175)	2013/12/08	NC	%	30	
		22'33'466'-HeptaCB-(176)	2013/12/08	7.7	%	30	
		22'33'45'6-HeptaCB-(177)	2013/12/08	4.8	%	30	
		22'33'55'6-HeptaCB-(178)	2013/12/08	9.7	%	30	
		22'33'566'-HeptaCB-(179)	2013/12/08	0.5	%	30	
		HeptaCB-(180)+(193)	2013/12/08	2.4	%	30	
		22'344'56-HeptaCB-(181)	2013/12/08	NC	%	30	
		22'344'56'-HeptaCB-(182)	2013/12/08	NC	%	30	
		22'344'5'6-HeptaCB-(183)	2013/12/08	2.2	%	30	
		22'344'66'-HeptaCB-(184)	2013/12/08	NC	%	30	
		22'3455'6-HeptaCB-(185)	2013/12/08	NC	%	30	
		22'34566'-HeptaCB-(186)	2013/12/08	NC	%	30	
		22'34'55'6-HeptaCB-(187)	2013/12/08	6.8	%	30	
		22'34'566'-HeptaCB-(188)	2013/12/08	NC	%	30	
		233'44'55'-HeptaCB-(189)	2013/12/08	NC	%	30	
		233'44'56-HeptaCB-(190)	2013/12/08	6.4	%	30	
		233'44'5'6-HeptaCB-(191)	2013/12/08	NC	%	30	
		233'455'6-HeptaCB-(192)	2013/12/08	NC	%	30	
		22'33'44'55'-OctaCB-(194)	2013/12/08	7.2	%	30	
		22'33'44'56-OctaCB-(195)	2013/12/08	4.8	%	30	
		22'33'44'56'-OctaCB-(196)	2013/12/08	15.1	%	30	
		22'33'44'66'OctaCB-(197)	2013/12/08	NC	%	30	
		OctaCB-(198)+(199)	2013/12/08	12.1	%	30	
		22'33'4566'-OctaCB-(200)	2013/12/08	NC	%	30	
		22'33'45'66'-OctaCB-(201)	2013/12/08	NC	%	30	
		22'33'55'66'-OctaCB-(202)	2013/12/08	NC	%	30	
		22'344'55'6-OctaCB-(203)	2013/12/08	17.5	%	30	
		22'344'566'-OctaCB-(204)	2013/12/08	NC	%	30	
		233'44'55'6-OctaCB-(205)	2013/12/08	NC	%	30	
		22'33'44'55'6-NonaCB-(206)	2013/12/08	11.7	%	30	
		22'33'44'566'-NonaCB-(207)	2013/12/08	NC	%	30	
		22'33'455'66'-NonaCB-(208)	2013/12/08	NC	%	30	
		DecaCB-(209)	2013/12/08	4.3	%	30	
		Monochlorobiphenyl	2013/12/08	20.2	%	N/A	
		Dichlorobiphenyl	2013/12/08	29.4	%	N/A	
		Trichlorobiphenyl	2013/12/08	35.8	%	N/A	
		Tetrachlorobiphenyl	2013/12/08	15.4	%	N/A	
		Pentachlorobiphenyl	2013/12/08	13.4	%	N/A	
		Hexachlorobiphenyl	2013/12/08	13.0	%	N/A	
		Heptachlorobiphenyl	2013/12/08	0.4	%	N/A	
		Octachlorobiphenyl	2013/12/08	12.7	%	N/A	

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QA/QC			Date Analyzed				
Batch			yyyy/mm/dd	Value	%Recovery	Units	QC Limits
Num	Init	QC Type	Parameter				
3450671	CXU	RPD - Sample/Sample Dup	Nonachlorobiphenyl	2013/12/08	15.2	%	N/A
			Decachlorobiphenyl	2013/12/08	4.3	%	N/A
			Total PCB	2013/12/08	1.3	%	N/A

N/A = Not Applicable

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) Recovery below method criteria 40% -135% due to matrix interference

(2) Recovery exceeds method criteria 80% - 140%

This may be due to sample heterogeneity.

(3) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(4) Recovery below method criteria 80% - 140%

This may be due to sample heterogeneity.

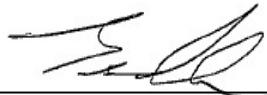
(5) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(6) Duplicate sample results don't match. Probably due to matrix homogeneity.

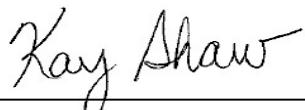
Validation Signature Page

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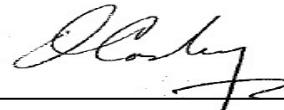
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Brad Newman, Scientific Specialist



Kay Shaw, C. Chem, Sr Scientific Specialist, HRMS Services



Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.